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DOMESTIC ENGINEERING

PUBLISHED AT
900 PRAIRIE AVENUE
CHICAGO

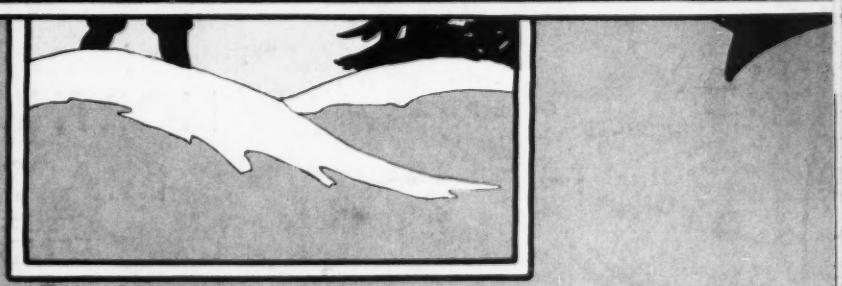
Denver Sets Example in Working out Area Agreement to Make the Code Fit Local Conditions

All Branches of the Industry Voice Approval of a New Type of Advertising to Public

How the Winners of Last Month's Prizes Sell FHA Jobs

To All of Our Readers the Editors Extend their Best

Wishes for A Merry Christmas and A Happy New Year



DECEMBER
1934

Plumbing & Heating Contracting and Merchandising

SATISFACTION

in the Green and Black Box

When a new product like the ACE Ball Cock jumps immediately into popular demand, maybe it's novelty. But when, after several years, that product is going stronger than ever, gaining consistently all the time—then it's a case of quality and satisfaction, and no mistake.

The ACE Ball Cock has adjustment for quiet operation at *all* pressures. It has roller-bearing action for higher closing ratio without the drag of old-fashioned linkage. It has independent shut-off for emergency and convenience. It has renewable seat, like the finest faucets. It comes in the green and black box recognized by wise plumbers as a guarantee of customer satisfaction and profit for themselves.

If you've been overlooking the ACE Ball Cock, ask your jobber about it. It's the kind of an item you're proud to recommend and install.

NIBCO

. . . and for
Copper Plumbing,
use
FITTINGS BY NIBCO

NORTHERN INDIANA BRASS COMPANY

ELKHART, INDIANA

A Best Seller

THIS outfit is making profits for plumbers everywhere. Having a china bowl and drum shaped tank, it is as good looking as a bathroom closet. The name Vogel is your guarantee of quality, dependability and freedom from repairs. Write for folders and blotters on the Vogel Number Four and other Vogel products. The profitable line for plumbers to push.

JOSEPH A. VOGEL COMPANY . . .
Wilmington, Del.
St. Louis, Mo. . . .

No. 4—Best-looking frost-proof closet made. Vitreous bowl, top supply.

VOGEL PATENTED *Frost-Proof* **PRODUCTS**

Established 1889

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DECEMBER, 1934

	Page
It Happened This Month!	26
First Area Agreement Makes Code Fit Local Needs	28
Advertising Plumber to Public Helps Business	31
Selling Through Heating and Plumbing Contractors Stands Test of 20 Years	34
FHA Sales Win Prizes for Six	35
FHA Adds $4,000 to Sales Each Month	38
Plumbing and Heating Sales Up	40
U. S. Announces Program to Clear Up Mortgage Evils	41
Answering Your Questions on Codes	43
How to Thaw Frozen Water Pipes with Electric Welder	44
Two Chimneys for One. By H. T. Long	46
Steam Cooking Equipment Requires Proper Drainage. By Leo P. Flood	141

AUTOMATIC HEAT AND AIR CONDITIONING SECTION

News of Heating Contractors' Code Activities	57
Sales Efforts Place Oil Burners in "Own Your Own Home" Exhibits	58
Oil Burner Rules Are Guide to Better Installations	61
Servicing for Air Conditioning Jobs. By L. G. Huggins	65
What the A. H. and A. C. Dealer Should Know About Electrical Terms and Facts. By O. W. Thomas	66
Deck House Becomes Home with Automatic Heat	69
How to Figure Air Conditioning to Supplement Ventilation in a Typical Restaurant. By Harold L. Alt	70
Automatic Heat and Air Conditioning Questions	76
Products for the Dealers	91

SPECIAL DEPARTMENTS

Editor's Page	23
Our Industry	25
Questions and Answers	50
Supply News	109
New Products for Store, Shop and Job	117
The Trade	121
Women's Page	137
Bar Service	141
Plumbing and Heating Patents	145
Index to Advertisers	154

CHICAGO FAUCET NEWS

Issued Monthly by The Chicago Faucet Co., 2700-22 N. Crawford Ave., Chicago, Ill. Vol. 3, No. 2

GOOD WILL CAN DRIP AWAY

Leaking Faucets Undermine Customer Confidence

CHICAGO FAUCETS ENABLE USERS TO FORESTALL LEAKS

Plumber Profits Doubly from Chicago Faucet Sales

Plumbers who sell Chicago Faucets report that the renewable feature is a definite factor in maintaining customer satisfaction. Customers, they say, like the protection the renewable seat and washer insure against prolonged leaking and the annoyance resulting from service interruption and repair cost. This is in strong contrast with the feeling created by a faucet prone to leak and which, when it does leak, means cost and delay.

Plumbers with Chicago Faucets on display, find that their points of superiority make a strong appeal. The fact that the standardized operating unit is removable; that the monel metal seat and washer can be replaced with others at the first sign of dripping; that the body of the faucet is not subject to wear; that the cost of occasional renewals is but a few cents, and that these renewals are all the "repairs" ever necessary, appeal at once to the customer.

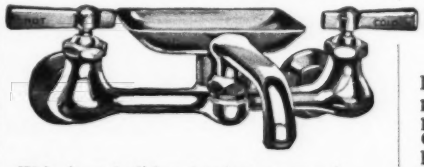
The normal profit on Chicago Faucets is not the only profit. The customer's satisfaction is a further profit.

Water-Saving Feature Makes Strong Sales Appeal

No. 620 Brownie Shower Head

Apart from its invigorating shower action and its self-cleansing feature, the Brownie Shower Head's water saving quality touches the home owner in a sensitive spot—his pocket book. When a householder or the manager of a hotel or apartment building learns that the Brownie will save from 25 to 50 percent of the water ordinarily used for shower bathing, it doesn't take him long to figure the effect on his water and fuel bills. Show the Brownie, explain this water-and-fuel-economy feature and you'll make some profitable sales.

Chicago Faucets Make Practical Christmas Gifts



This is a holiday buying season in which the trend is for practical gifts. The stores report that gadgets, doo-dads and trinkets are no longer so strongly favored for gifts as compared with practical things. Instead of buying being centered principally in "luxury" and "gift" sections, it is, this year, apparently more in line with "needs" than ever before.

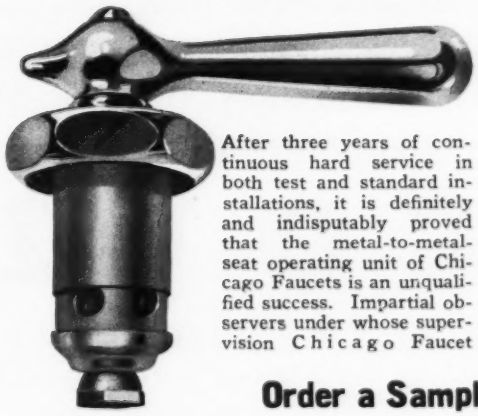
This, then, is the season for pushing Chicago Faucets as gifts. What home owner or housewife would not be pleased to have a glistening Chromium masterpiece like the Straight-8 Classic Sink Faucet illustrated, to grace the sink and complete the ensemble of modern appliances that glorify today's kitchen? Or, perhaps, an Add-a-Shower for the bathroom might make some entire household happy on Christmas morning. Chicago Faucets are particularly appropriate for gift purposes because they fit into the principle of making gifts better than ordinary. Chicago Faucets are the "last word" in quality. Design, construction, operating principle, features, finish—in all these Chicago Faucets are recognized as representing top quality—plus. They fulfill every implication that any gift must carry to be most satisfying to both recipient and donor. Look over your stock of Chicago Faucets and prepare your display to attract gift buyers.

The current price situation on most lines of brass goods puts the anxious plumber or jobber with a stock in the position of a man on a tight rope; but, Chicago Faucet stabilized prices give him all the assurance of the man on the flying trapeze.

CHICAGO FAUCETS

Last as Long as the Building

Three Years' Hard Service Proves Chicago Faucet Metal-to-Metal Unit O. K



After three years of continuous hard service in both test and standard installations, it is definitely and indisputably proved that the metal-to-metal-seat operating unit of Chicago Faucets is an unqualified success. Impartial observers under whose supervision Chicago Faucet metal-to-metal units have been in service in barber shops, restaurants, hospitals and institutions—where demands on faucets are extreme — pronounce them satisfactory in every respect. The only departure from the standard seat washer construction to effect metal-to-metal seating is the introduction of a monel metal ball stem end in place of the seat washer. Either type of seating is now optional—and interchangeable.

Order a Sample Unit for Tests

MAIN LIBRARY

BACK UP GOOD WORK WITH

SCOVILL

FITTINGS

The reputation that brings you business is built on the class of materials you use as well as the work you do. That's why many plumbers protect their reputations by recommending Scovill products whenever possible.

It's common knowledge that plumbers' goods with the Scovill mark are made for hard wear and long life. That finishes are put on to stay. That styles and appearance are up to date and pleasing. That design and construction are sound and simple. That the many patented features of the Scovill line simplify installation.

Our many years of experience in the industry have proved to our satisfaction that a sound, quality line is best for the individual plumber and best for ourselves. And thousands of the trade agree. Send us your wholesaler's name and ask us for details of the Scovill line. Write to Scovill Manufacturing Company, Plumbers' Brass Goods Division, Waterville, Connecticut.

SCOVILL

SCOVILL MANUFACTURING COMPANY

PLUMBERS' BRASS GOODS DIVISION • WATERVILLE, CONNECTICUT

Scovill Flush Valves, Shower, Bath and Lavatory Fittings • Miscellaneous Plumbers' Brass Goods

K-3395 SPEAKMAN Anystream Self-Cleaning Shower Head (Pat. Jan. 2, 1923 and Nov. 3, 1931). Lever operated. For residences, hotels and general installation.

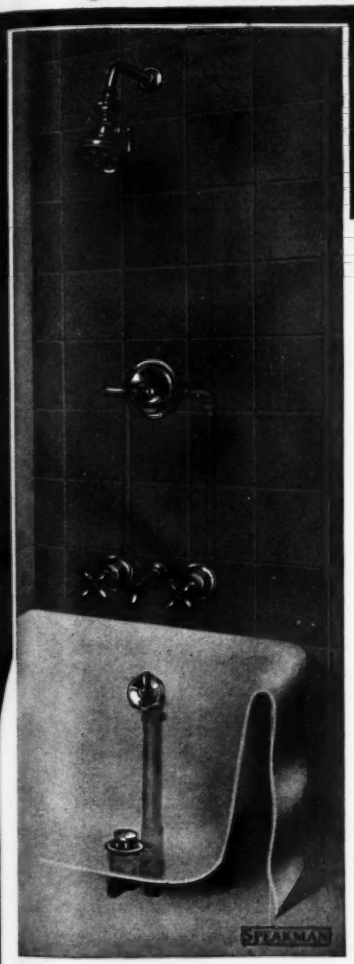
How Good! *Never* How Cheap

YOU know as well as we that you can have a lot of grief with fixtures which *look* first grade *but* which sell on price.

As a good plumber, you cannot afford to install such fixtures and you should tell your customer this. Point out to him the value of heavy castings and clean cut threads. Show him what it means to have renewable seats in his valves. Remember that he doesn't know anything about such things. Also show him how swivel disc, encased washers will save leaking faucets and consequent repair bills. Point out that full sized waterways mean full streams in the shower, bath, lavatory and sink. Then tell him about Speakman Chromium Plate that will never wear off. Finally you can point out that the difference between fixtures sold on price and Speakman fixtures is small and in the end he will save money by taking your advice.

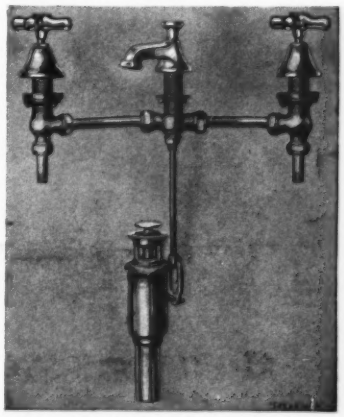
Let us know if you need literature which is designed to help you sell the Speakman Line — Its been quality for 64 years.

SPEAKMAN COMPANY
Wilmington : · · Delaware



K-4039-M—SPEAKMAN Mixometer Shower and Tub Combination. ½" size. All metal handles and escutcheons. Has Speakman Anystream Self-Cleaning Shower Head and Act-Easy Pop-Up Waste. Valves connected by brass pipe and tested.

K-5503-M—SPEAKMAN Grace-Line Sink Fixture (Design Patented)



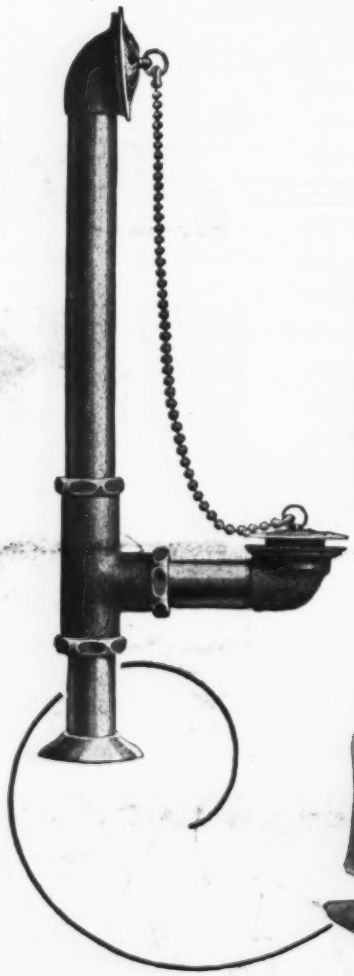
K-5010 — SPEAKMAN Unit-Acto Lavatory Fixture.

PATS. PENDING

K-1001 — SPEAKMAN Chromium Plated Si-Flo Closet Flush Valve with 1" capped angle stop for right or left inlet, wall flange, metal oscillating handle, flush connection, spud coupling nut and flange for 1½" top supply.

SPEAKMAN
Showers & Fixtures

WISECO PRODUCTS



This HANDY BATH COMBINATION consisting of BATH COCK, WASTE and OVERFLOW and SUPPLIES complete in one package is a great convenience and a big time saver for both the jobber and the plumber.

ASK FOR IT

J. B. WISE, INC.

WATERTOWN, N. Y.

New York
San Francisco
Atlanta
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Philadelphia
Montreal

Chicago
Los Angeles
Seattle
Detroit
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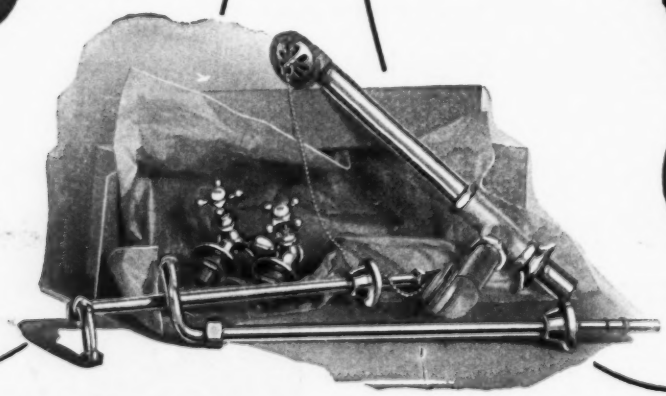


THE STANDARD OF QUALITY SINCE 1877

BUSINESS *for* YOU *in the* N. H. A. PROGRAM

Get your share with the Anaconda Line

THE NATIONAL HOUSING ACT, in effect only a few months, has stimulated a considerable amount of modernization and new home building already. And next year . . . in 1935 . . . activity in the construction industry promises to hit its stride. This building revival means opportunity for you. It will be easier for you to get your share of the business if you recommend these well and favorably known Anaconda products.

ANACONDA BRASS PIPE

In standard sizes for threaded assembly, Anaconda 85 Red-Brass Pipe is recommended as the most durable pipe commercially obtainable at moderate cost. Thousands of installations in all types of buildings prove its freedom from all upkeep costs due to rust.

ANACONDA COPPER TUBES AND FITTINGS

To help you compete for low-priced rust-proof jobs, The American Brass Company furnishes Anaconda Deoxidized Copper Water Tubes, together with a complete line of Anaconda Fittings—both "solder" and "flared tube" types. Both tubes and fittings are made to the accurate, standardized dimensions so essential for sound, leak-proof joints. For complete information on Copper Tubes and Fittings, write for Publication C-24.

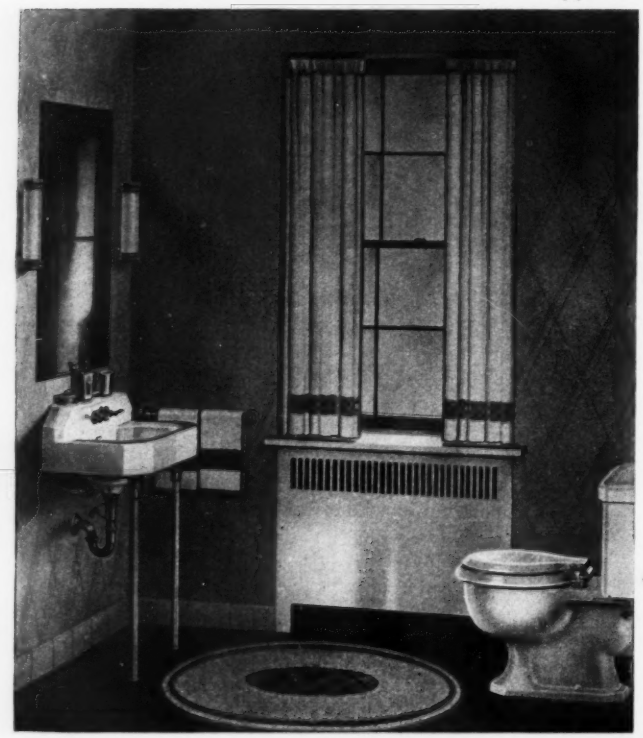
ANACONDA
From mine to consumer

THE AMERICAN BRASS COMPANY
General Offices: Waterbury, Connecticut
Offices and Agencies in Principal Cities

NRA CODE

ANACONDA COPPER & BRASS

HOW MANY BATHROOMS WILL YOU HANG ON CHRISTMAS TREES?



It's a *practical* holiday. Sell practical, beautiful Kohler Matched Sets

CHRISTMAS comes in handy this year. People haven't any money to waste on frills. They're going to give useful, hard-working presents—like a new faucet for the kitchen sink, a shower, or a handsome new Kohler bathroom. The farsighted plumber will lay plans now to cash in on some of this business.

At the top of your Christmas sales list place Kohler Matched Sets. Bath, lavatory, toilet harmonize gracefully in design. And match in quality, too! A cross-section of one square inch is like a cross-section of every other square inch. Gleaming surfaces are uniformly smooth and easily cleaned.

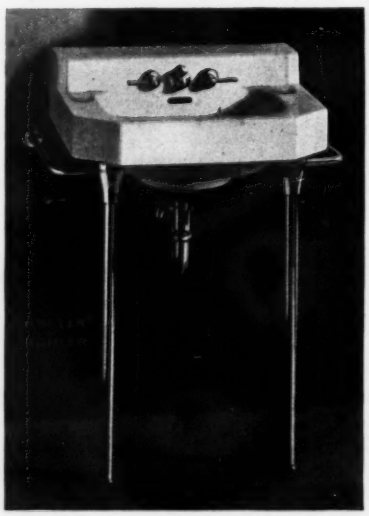
You do *your* part. Do a little Christmas decorating—wreaths, candles, red and green paper, window placards. Place a small tree in the window, with a suggested card on it like this: "A new Kohler bathroom is coming soon—Dad." All most people need is an idea. Give it to them—and make *your* Christmas merry! Kohler Co. Founded 1873. Kohler, Wis. Shipping Point, Sheboygan, Wis.

← Kohler Matched Set for the Washroom

Every home needs a Lavette, or washroom. Kohler suggests these two handsome vitreous china fixtures as practical Christmas merchandise. The Strand—space-saving lavatory with shelf—is only 15 inches from wall to front. The Kohler Bolton—quiet toilet of graceful lines.

Or, the Gramercy and Integra →

The Gramercy lavatory has a 4½-inch shelf for powders, brushes, jars. Built in towel bars and soap dishes. The Integra one-piece toilet is a true hygienic syphon jet, quiet, compact, modern, and matches the lavatory in design.

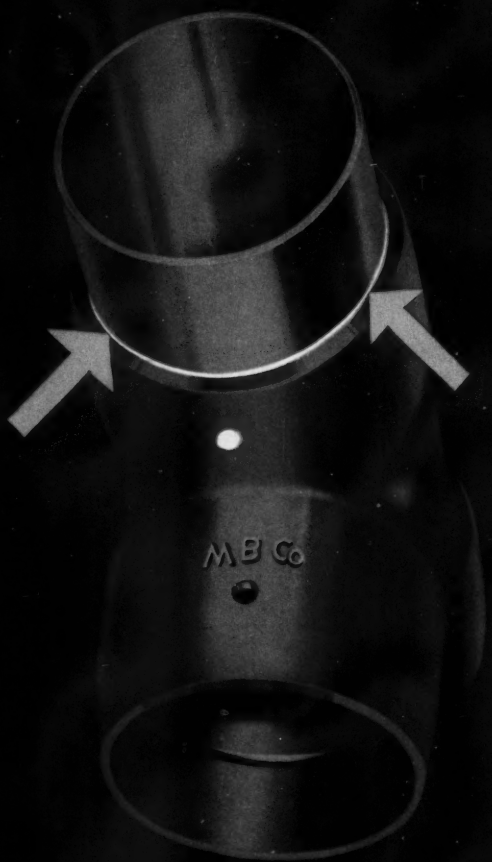


N.H.A. Kohler is headquarters for Housing Act material to help the plumber. Posters, sales solicitations, booklets, full data for your customers. If you haven't got yours already write us.

KOHLER OF KOHLER
planned plumbing

VISUAL PROOF

OF A PERFECTLY BONDED JOINT



TRADE MARK

STREAMLINE

REG. U.S. PAT. OFFICE

FITTINGS AND COPPER PIPE

WHEN the Journeyman feeds the solder *into* a STREAMLINE Fitting, it furnishes its own visible proof of a leak-proof, perfectly bonded joint—by its appearance as a continuous silver ring at the end of the fitting around the full circumference of the pipe.

This is proof that he can see at a glance, it tells him, beyond all doubt and without resorting to an actual pressure test, that the joint he has just made, will not leak, that vibration cannot loosen it, that it is permanent and actually stronger than the pipe itself.

The solder ring is not mechanically produced by feeding from the end of the fitting—it occurs AUTOMATICALLY as a result of capillarity, which has drawn the solder THROUGH THE FEED HOLE and from the feed channel in the fitting, causing it to distribute evenly between the bonding surfaces—AND TO FLOW OUTWARDS to the end of the fitting.

STREAMLINE gives the plumbing contractor an article of exceptional sales merit and a potential source of increased business in unprosperous as well as prosperous times. It utilizes a new and successful principle in piping connections AND REQUIRES THE PLUMBER'S SKILL AND TOOLS TO INSTALL. Its remodeling possibilities are unlimited. It cannot be procured from direct-to-you houses or department stores.

Send for Catalog F.

STREAMLINE PIPE AND FITTINGS

PORT HURON, **CO.** MICHIGAN

DIVISION OF MUELLER BRASS CO.

PRICE ADVANTAGE

PLUS . . . QUICK ACTION!

Help Property Owner Make Application

Get Credit Approval from Crane Cashier

Do Work With Quality Materials

Submit Note To Crane Branch . . . Get Money!

New Crane Plan and Recent Price Reductions Give You Every Advantage in Modernizing Market Today!

As a Crane dealer you'll get your share of today's modernizing money! You have everything to offer: Everything that brings in sales . . . fair prices, sound credit procedure and quality materials. An unbeatable combination! Furthermore, you'll get *action* on everything from credit investigation to delivery of Crane materials.

The new Crane Plan for home modernizers offers property owners the quickest, easiest means of financing, selecting and installing equipment. No question of mortgages, no red tape, no down payments. No endorsement to hold back the job. You bring the home owner's application to the Crane cashier and get *immediate credit investigation* without cost to you. The Crane H. A. Finance Plan offers money at government rates . . . three years to pay.

Crane showrooms, dealer helps and merchandising services are all ready for you. Use the Crane Plan for *quick action* . . . you get your money for your work promptly, too! All Crane branches are ready to put materials in your hands promptly. Use the coupon to get started!

WE ARE CO-OPERATING BETTER HOUSING PROGRAM

NRA

CRANE

PLUMBING & HEATING MATERIALS • WATER SYSTEMS

Send Me Complete Information About the Crane Plan For Quick Action!

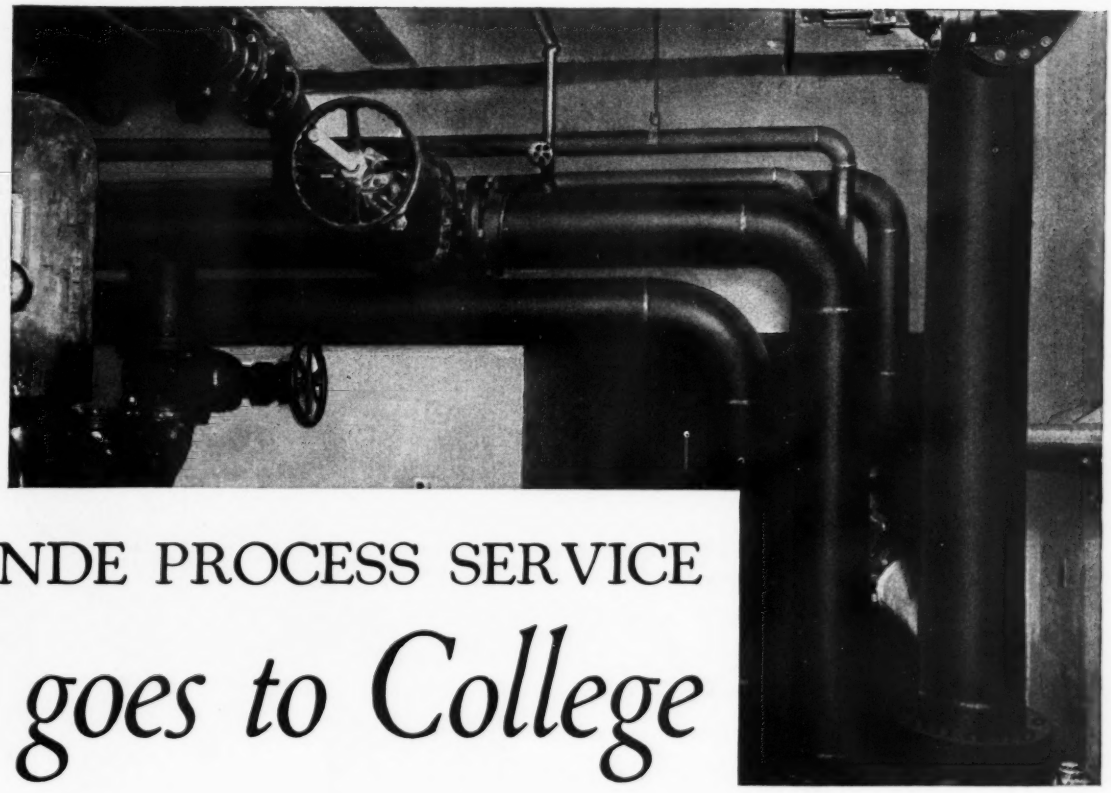
Crane Co., 836 S. Michigan Ave., Chicago, Ill.

Gentlemen:

Send me complete information on the Crane Plan. Also your dealer modernizing service helps.

Name ..... *Firm* .....

Address ..... *City* ..... *State* .....



LINDE PROCESS SERVICE *goes to College*

New Heating Plant Completely Oxwelded

PAST performance of oxy-acetylene welded steam piping... installed under supervision of Linde Process Service... made an extremely favorable impression on the authorities of a well-known mid-west university. A new building program called for an additional 43,000 sq. ft. of space to be heated requiring a new heating plant. Based on previous experience... and Linde cooperation... the decision was in favor of an oxwelded pipe installation.

Contracts called for about 8,000 feet of pipe, from 1 1/2 to 12 in. in diameter. A wide variety of pipe specials was necessary to combine many pieces of modern boiler plant equipment into an efficient working unit.

Linde engineers stayed with the job from start to finish, furnished helpful data, advised on the best procedures, and worked with officials of the university and contractors, to insure strong, leakproof, permanent joints. That is Linde Process Service. It makes available to every user of Linde Oxygen—at no extra cost—sound welding and cutting practices based on thousands of experiences in many industries. And the value of this unique service is further amplified by coordination with the vast resources, scientific research and engineering facilities of other Units of Union Carbide and Carbon Corporation.

The nearest Linde Sales Office will be glad to tell you about Linde Process Service. These are located in Atlanta—Baltimore, Birmingham, Boston, Buffalo, Butte—Chicago, Cleveland—Dallas, Denver, Detroit—El Paso—Houston—Indianapolis—Kansas City—Los Angeles—Memphis, Milwaukee, Minneapolis—New Orleans, New York—Philadelphia, Phoenix, Pittsburgh, Portland, Ore.—St. Louis, Salt Lake City, San Francisco, Seattle, Spokane and Tulsa. Everything for oxy-acetylene welding and cutting—including Linde Oxygen, Prest-O-Lite Acetylene, Union Carbide and Oxweld Apparatus and Supplies—is available from Linde through producing plants and warehouse stocks in all industrial centers.

PRODUCT OF A UNIT OF UCC UNION CARBIDE AND CARBON CORPORATION

THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

UCC

In Canada: Dominion Oxygen Co., Ltd., Toronto

YOU CAN ORDER EVERYTHING FOR OXWELDING AND CUTTING FROM LINDE

These Tanks are Trumps

IN THE NHA CONTRACTS

NEW fixtures and fittings in bathrooms and kitchens . . .

★ ★ ★

HEATING plant overhauls and replacements . . .

★ ★ ★

ADDED rooms of all sorts . . .

Monel Metal Hot Water Tank (range boiler) made in all standard sizes and tested by hydrostatic pressure from 200 lbs. up to 350 lbs. Absolutely rust-proof. Guaranteed 20 years. Also available are Monel Metal horizontal storage tanks for large homes and apartments.

LOOK at the ways the N. H. A. opens up chances for you to land *extra* jobs:

Some folks are modernizing their bathrooms, putting in new plumbing fixtures. That's a perfectly swell chance to talk "rusty water". . . and sell a Monel Metal range boiler in addition to the bathroom job.

Other home owners want to make the kitchen over . . . put in Monel Metal sinks and cabinet tops. Go ahead and sell them . . . but don't miss the same chance to sell a Monel Metal range boiler.

Still others are all steamed up over their heating systems. And after you have broken into their water connections you usually find enough evidence of rust to convince them they need a Monel Metal range boiler . . . which *never* rusts.

Or consider the folks whose growing families make them figure on building added rooms. They haven't even thought about plumbing as yet. Get right after them. *Some* plumber's services will be called for, so why not yours? Sell them added radiation, adequate bathroom equipment, *and* a new big hot water tank of bright, shining Monel Metal!

We are boosting Monel Metal Hot Water Tanks by advertising in magazines that reach 10,000,000 families. Just the folks who can qualify for Housing Act loans. We are telling them to ask *you* for prices on these rust-proof tanks that resist corrosion . . . tanks so strong they withstand the stiffest tests . . . tanks we guarantee 20 years.

We do our part, building demand for Monel Metal tanks. Uncle Sam does his part, making the money easy to get. If *you* do *your* part, these jobs will go to you, and *not* to some competitor.

Drop us a line today for catalog and prices.

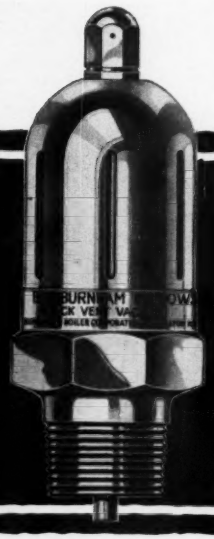
THE INTERNATIONAL NICKEL COMPANY, INC., 67 Wall Street, New York, N.Y.

MONEL METAL

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

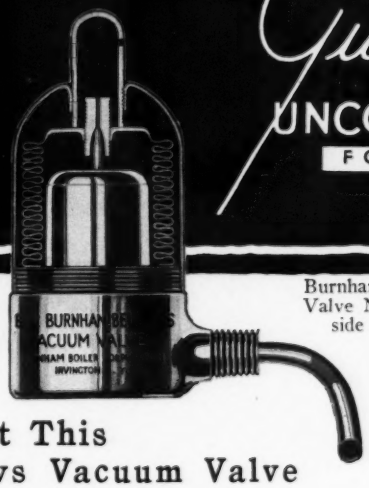
NRA CODE

Monel Metal



Guaranteed UNCONDITIONALLY FOR ONE YEAR

Quick vent Bellows Vacuum Valve No. B-4 for mains, risers and convector radiators. ¾-inch male and ⅜-inch female thread.



Burnham Bellows Vacuum Valve No. B-2 with ⅛-inch side outlet for radiators.

About This Burnham Bellows Vacuum Valve

WHICH do you want, hot air or cold facts? Would you take our word, as against your common sense, if we beat the big bass drum and claimed this Burnham Bellows Vacuum Valve for one-pipe steam jobs, would save—well let's say 25 percent of the fuel bill? Of course you wouldn't. You are fed up on all that ballyhoo, and so are we.

So let's get down to brass tacks. Here's a bellows-acting valve that we honestly believe will do an air venting job on one-pipe steam systems, the way you have so long wanted it done. It's an in-and-out. *Freely* out vents, and *positively* prevents air being sucked in.

If it actually does both those things, wouldn't you say that it's a cinch it means *quicker heating, longer holding* of the heat, and a *fair saving* of fuel?

One thing sure, if it doesn't do both of them better than they have ever been done before, then there just isn't any reason at all for your buying it. No reason, no matter if it is chromium plated or how swell looking it is. Or how attractive the individual boxes are that it is put up in. Or even if we do guarantee it unconditionally for one year.

Of course, we think it's a better valve. That's why we put the name Burnham on it.

If you want all the low-down on it, as to how it's made and what of, send for special circular. Get the facts. See for yourself. Don't pay any attention to what we think about it. Come to your own conclusions.

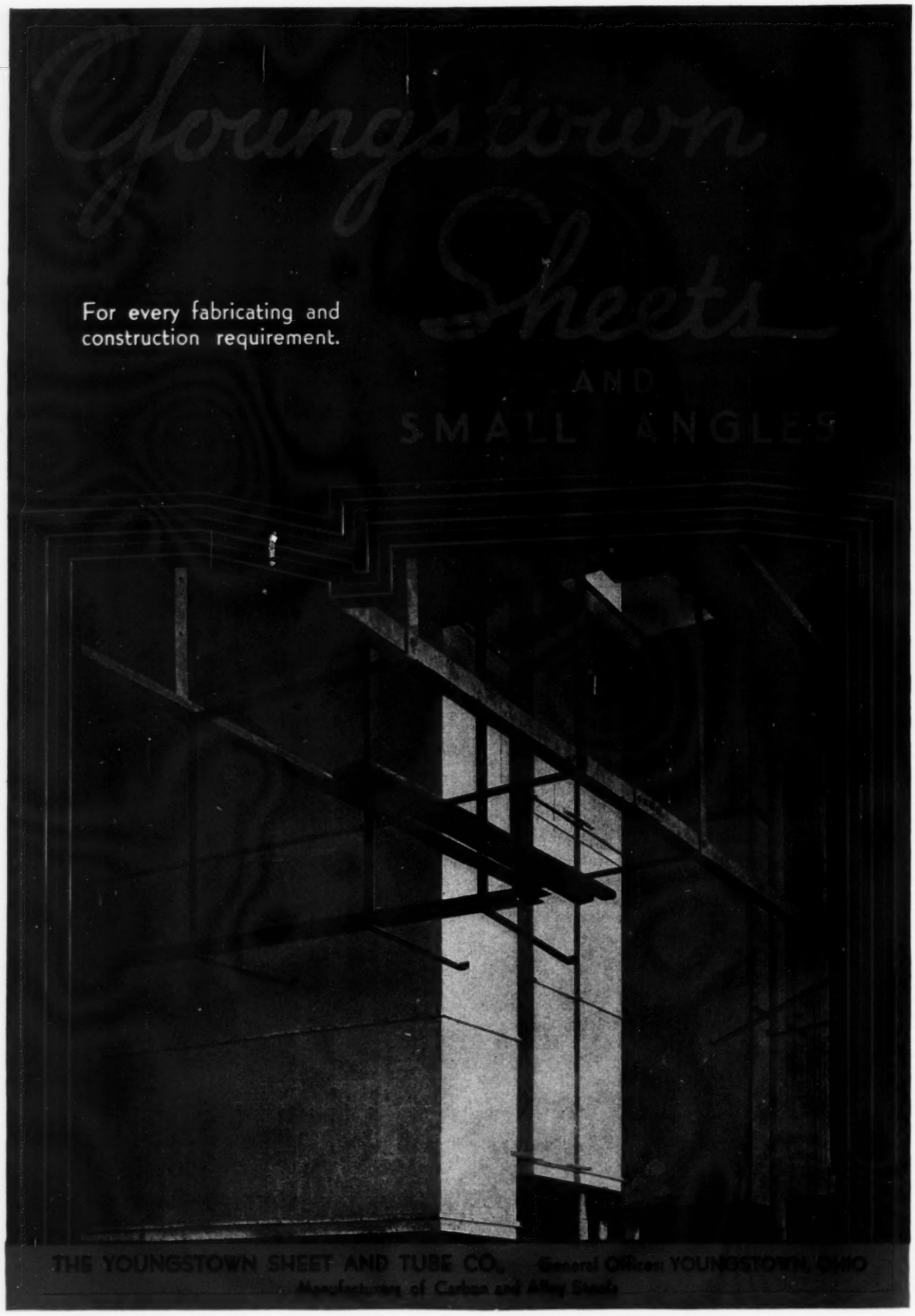
Burnham Boiler Corporation

Irvington, New York

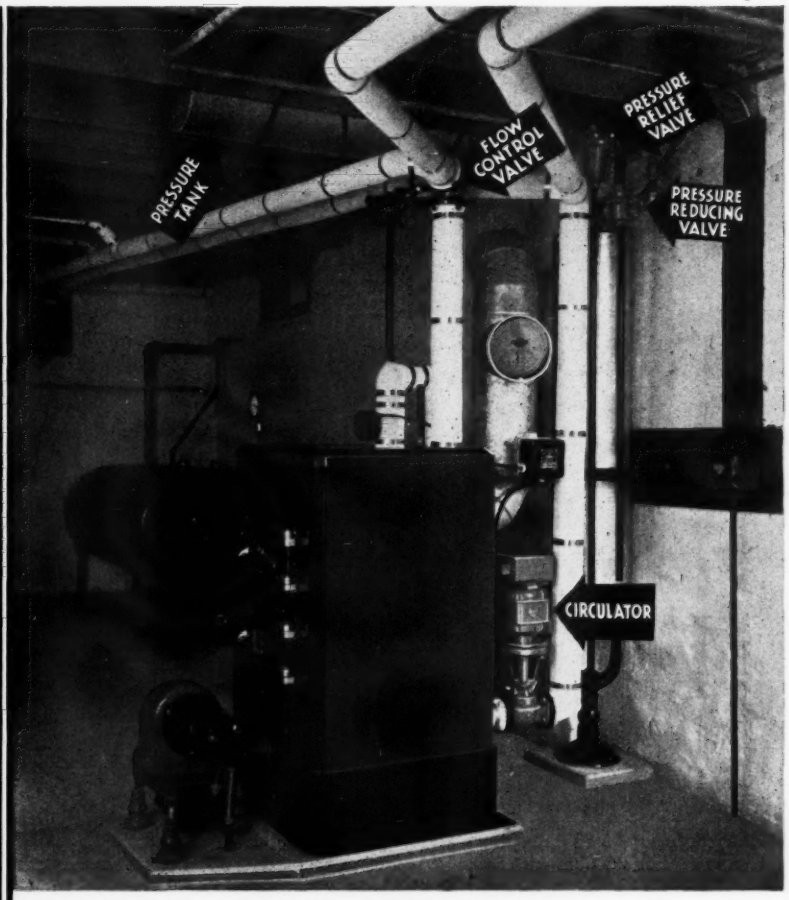
Representatives in all Principal Cities of United States and Canada

Do You Want LIES OR THE TRUTH About These NEW VALVES?

Each valve is packed in its own separate box like this. Not that it matters, only that it really does.


Youngstown
Sheets
AND
SMALL ANGLES
For every fabricating and
construction requirement.
THE YOUNGSTOWN SHEET AND TUBE CO. General Offices: YOUNGSTOWN, OHIO
Manufacturers of Carbon and Alloy Steels

EACH JOB SELLS ANOTHER FOR YOU



Thrush Flow Control Installation in York, Pennsylvania

MORE HOME COMFORT MEANS MORE SALES and PROFIT FOR YOU!

THRUSH Flow Control Hot Water Heating provides the home comfort expected in the home of today. Thrush Control makes Hot Water Heating quick heating—instantaneous heating! Hot water reaches every radiator in every room instantly when heat is needed because circulation is forced. When heat is not needed circulation stops—no fuel is wasted in overheating. This reduces the running time of the burner and greatly increases heating efficiency. It also provides a dependable supply of *really hot* domestic hot water at negligible cost.

Every Boiler-burner Unit Hot Water Heating plant intended for year around operation of burner to provide heat and domestic hot water supply in winter and domestic hot water in summer should have Thrush Flow Control as standard equipment. Then it is fully automatic and economical of fuel.

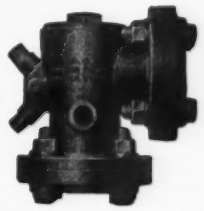
It pays to sell Thrush equipment which pleases users so much they tell their neighbors and get new customers for you!

H. A. THRUSH & CO.
PERU, INDIANA

LETTERS FROM THRUSH USERS

Frederick A. Thayer, Attorney, of Boston, expresses his satisfaction with his Thrush Flow Control Hot Water Heating System furnishing heat for ten rooms and two baths and halls of his two story home. His plant provides heat in winter and domestic hot water for bath, kitchen and laundry the year around. His fuel oil bill for twelve months was $210.00. He is very well pleased because of the abundance of domestic hot water always available and says that the fuel cost was very low considering the severe weather of last winter.

H. W. Deacon, Hainesport, N. J., writes—"The winter of 1933-34 was the most severe winter I have experienced and my plant was operated the year around, yet my fuel bill was only $133.00. I figure my domestic hot water costs less than $1.00 per month, which is astonishing."



Patented

THRUSH FLOW CONTROL INCREASES OIL BURNER EFFICIENCY

PROVIDES AUTOMATIC YEAR 'ROUND OPERATION!

PLENTY OF DOMESTIC HOT WATER A BY-PRODUCT

MAIL THIS COUPON NOW!
H. A. THRUSH & CO., Box 459, Peru, Ind.
Please send booklet describing Thrush Flow Control Heating System and its advantages for use with automatic firing devices.
Name.....
Address.....
City.....State.....

Thrush
FLOW CONTROL FOR HOT WATER HEAT

Tribute to a Great American

On December 22, 1800, Paul Revere wrote to a friend: "I have engaged to Build me a Mill for rolling Copper into Sheets, which for me is a very Great Undertaking, and will require every Farthing which I can Rake or Scrape."

The mill was built . . . and Revere's copper was soon the standard of the Colonies. His copper was used to roof many important buildings; his bells sounded from sixty churches throughout New England; and his spikes, bolts, and copper sheathing were used for the new fleet of frigates . . . headed by the famous "Old Ironsides."

Looking back over these Colonial days, Revere Copper and Brass Incorporated recognizes that it owes more to the illustrious "midnight rider" than the fact that he founded the present company. For Revere was great, not only as a patriot, but as the foremost industrial pioneer. He tirelessly sought to do things in new and better ways. And as an artist and craftsman, he insisted on fine materials and painstaking workmanship.

It is this spirit, maintained through one hundred and thirty-four years of growth and consolidation, that is this company's proudest possession.

Paul Revere

REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere

IT'S LEAKPROOF!

...this heating element

in a **Sturtevant** SPEED HEATER

Here's a heating element that you can forget as far as leaks are concerned. It's absolutely leakproof. Note how the tube of each section of extended surface is connected to the header. Each joint is made permanently tight by a special method developed by Sturtevant.

GUARANTEED FOR 200 LBS. PRESSURE

Heating elements guaranteed for all steam pressures up to 200 lbs. per sq. in. are standard equipment in Speed Heaters.

TIME-SAVING INSTALLATION

You can connect up to either side of a Speed Heater. No need to bring supply line around the heater. Saves time, labor, pipe.

WE SUPPLY THE HANGERS

And save you time and expense. They're handy hangers of malleable iron all ready to be formed in your vise to fit installation conditions.

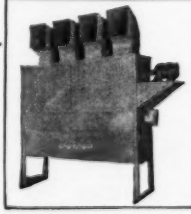
MULTI-SPEED MOTORS

A big advantage. Provide up to 5 speeds, depending on characteristics. High speed for extra-fast heating. Lower speeds are used for set normal temperatures.

QUICK SHIPMENT

Most popular voltages stocked in many locations. Other standard voltages stocked at Hyde Park.

SEND FOR COMPLETE DATA



STURTEVANT REXVANE HEATER

For floor, wall or ceiling installation. Built in a wide variety of types and sizes, ranging from 100,000 to 1,000,000 B.T.U.

B. F. Sturtevant Company, Hyde Park, Boston, Mass.

☐ Send me Sturtevant Speed Heater Catalog No. 396.

☐ Have your nearby representative call.

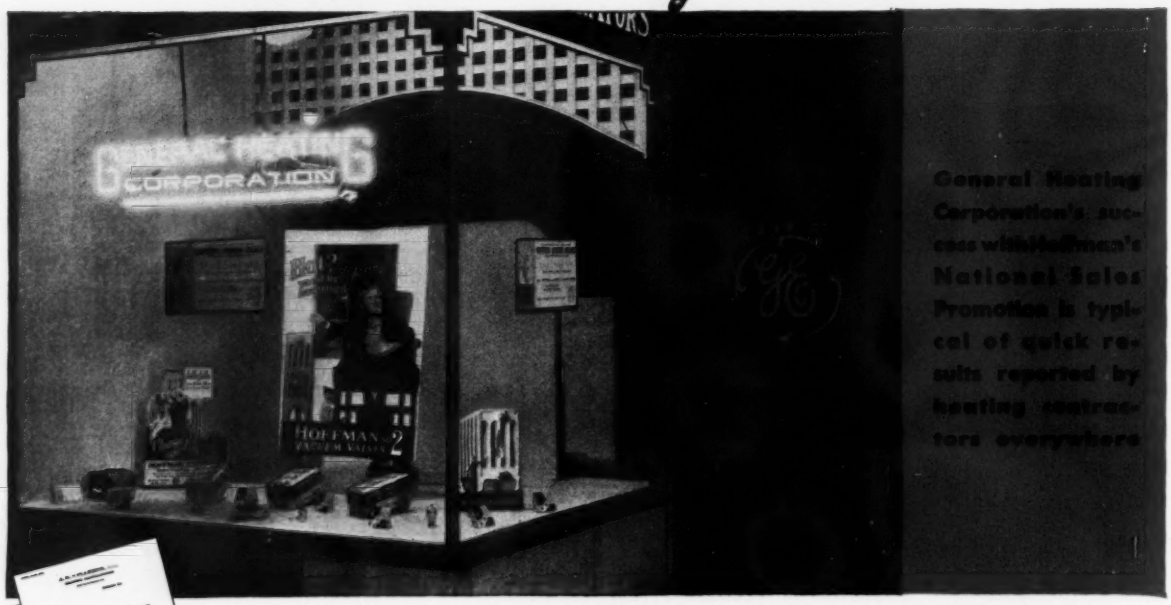
Name.....

Company.....

Address.....

D. E. 12-34

HOFFMAN'S PROGRAM *Makes Good!*



General Heating Corporation's success with Hoffman's National Sales Promotion is typical of quick results reported by heating contractors everywhere

"OUR LOCAL TIE-UP WITH HOFFMAN'S N. H. A. SALES PROGRAM HAS CERTAINLY PRODUCED A BIG INCREASE IN OUR MODERNIZING BUSINESS"

We promised results to heating contractors who geared themselves to the N. H. A. with Hoffman's National Sales Promotion. Daily reports show that we're making good on that promise!

For example, Mr. J. A. Ljunggren, head of the General Heating Corporation, live-wire Chicago contractors, offers these enthusiastic comments:

"Recognizing the big selling opportunity offered by the present national modernizing movement," says Mr. Ljunggren, "we took full advantage by tying up with Hoffman's advertising and sales promotion plan. As a result, our modernizing business has boomed.

"Among other jobs, we sold the Pure Oil Products Co. a complete Hoffman Vacuum Valve installation in their new laboratory building — a large and profitable order."

There's still time to do a good Hoffmanizing business. The National Housing Act hits its real stride from now on — don't let your share of the profits slip away! Send the coupon today for all the facts on Hoffman's Sales Promotion Plan.

Hoffman Specialty Co., Inc.
Dept. RX 105 Waterbury, Conn.

Send me full information on Hoffman's N.H.A. Cooperative Merchandising Plan

Name .....

Address .....

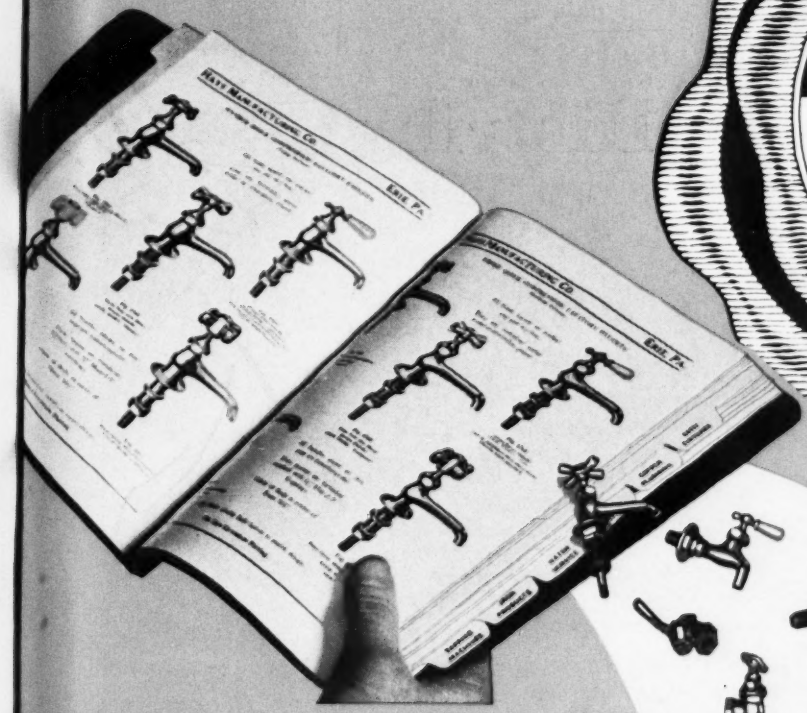
City .....

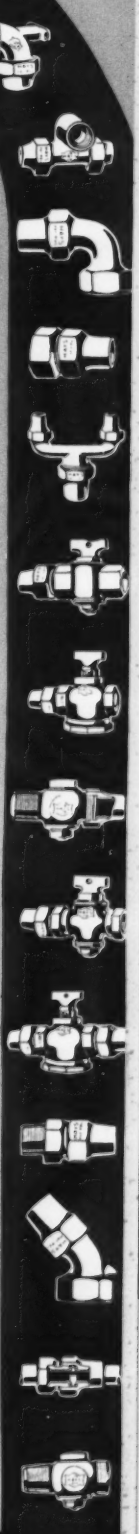
HOFFMAN VALVES

Also Makers of Hoffman Traps, Supply Valves and Hoffman-Economy Pumps

Dependable Brass by Hays

Use
the HAYS Copper
Plumbing Method
to join Hays Quality Brass from Street to Bath. Write for the New 24-page Catalog on Hays Copper Plumbing





from HAYS to WHOLESALER to PLUMBER — Since 1869

Dealing thru the Wholesaler has just as many advantages for the plumber as it has for Hays—that's why Hays has followed this practice for 65 years.

The wholesaler serves us both, Mr. Plumber. The wholesaler makes it possible for you:

1. To keep your stock at a minimum and to profit from rapid turn over. You buy as you need.
2. To save on interest charges and to release your capital for production purposes.
3. To avoid loss thru obsolesence. You can always get the latest goods from your wholesaler.
4. To save on transportation, handling, supervision and storage. All of which cost money.
5. To buy the necessary materials for a complete job on a single order to the wholesaler. Your wholesaler is your purchasing agent. Years of experience in buying qualify him to serve you efficiently.
6. To establish credit with someone who knows you intimately—your jobber.

You can get a copy of the loose leaf catalog of "Hays Plumbing Brass Goods" direct from Hays. Select the Brass Goods and Buy through your local wholesaler.

HAYS *Since 1869 Quality* BRASS

COPPER PLUMBING - - - BATH FIXTURES

PLUMBING BRASS GOODS *from Street to Bath*

CLIP THE COUPON TODAY

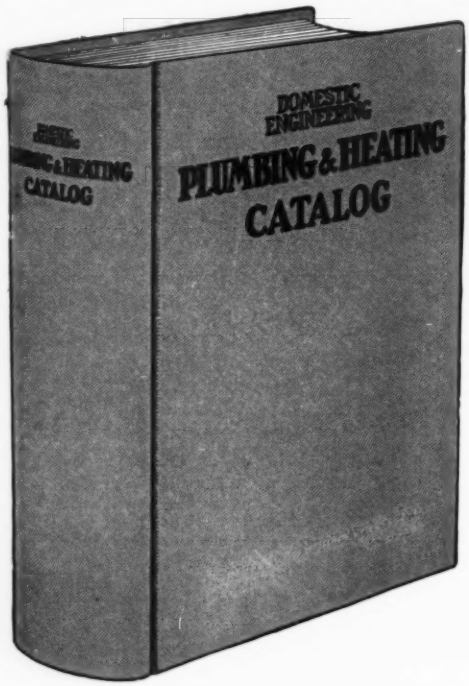
HAYS MFG. CO., ERIE, PA.
Gentlemen:
☐ Send 24-page catalog on Copper Plumbing.
☐ Send "Hays Plumbing Brass Goods" Catalog.

NAME .....

ADDRESS .....

CITY ..... STATE .....

NRA MEMBER



Soon Ready *for* Distribution

★

The 1935 EDITION

THE new 1935 edition of the PLUMBING AND HEATING CATALOG will soon be ready for distribution. We are making the announcement now because this next edition has more importance to everyone connected with the plumbing and heating industry than it has for years. That is a broad statement to make in view of what users of the CATALOG have been saying about it for years and years—men who use it every day, all day long, all year long—but the fact remains. The present stimulation in the industry due to the Federal Housing Act has not yet reached its height—in fact its most staunch backers and supporters say that the whole movement should really start taking hold after the first of the year in 1935.

Here then will be a real need for buying information—information that will be necessary in the specification and purchase of materials for jobs which come up in modernizing and remodeling—and the latest government figures indicate they are steadily increasing. In fact, since the first week, when 117 loans were made, there has been a steady increase and in the week ending November 3rd, the total had climbed to 5,600 loans in one week for modernizing and remodeling.

Plumbing and heating supply wholesalers and contractors will welcome the news that the price of the CATALOG has been reduced from $7.50 to $5.00. Where in your industry can you find such a wealth of information, so essential to the successful carrying on of your business for $5.00?

Sign the coupon below and mail it today. We will forward your copy as soon as the edition comes off the press.

DOMESTIC ENGINEERING PLUMBING AND HEATING CATALOG

12th Edition for 1935

Domestic Engineering Plumbing and Heating Catalog,
1900 Prairie Avenue, Chicago, Illinois.
We hereby authorize you to enter our order for one copy of the 1935 edition of Domestic Engineering Plumbing and Heating Catalog for which we agree to pay you five dollars upon receipt of the Catalog.

Firm .....Mark book for Mr.....

Street Address .....City and State.....

Signed by ....

BETWEEN OURSELVES

Thanks:
"I enjoy reading your journal very much for the educational values contained in it."
W. J. B.,
Ohio

Boom Days Ahead

Three years of diminished building has built up a demand which is steadily approaching the time when it will be released as a building boom. This is the opinion offered by the American Institute of Steel Construction. It joins with many other associations and business groups in expecting building to revive soon because there is a real need for better homes and more homes.

A Dollar Each Second

One of the men who figures out unusual statistics steps forward now with the record of the work of the Home Owners' Loan Corporation. He tells us that one man would have to work night and day for more than 100 years, passing out a dollar bill every second, in order to equal the fund distributed by the HOLC to relieve the mortgage situation.

Helps Building

The HOLC has been a present day influence in our industry through the money spent to put into better condition homes on which the government advanced new mortgage funds. It will have an influence in the near future by having taken off the mortgage market several billion dollars' worth of distressed mortgages which were retarding the recovery of the building industy. For example, figures, now some weeks old, show HOLC loans of $1,800,000,000 covering 579,000 loans averaging $3,000 and going to pay up past due mortgages.

Too Busy

The better business sentiment, noticeable everywhere, is now prevalent in our industry. Sales have grown, building construction figures are better, more dollars are being spent for modernization work, and here and there reports of shortages in skilled labor and occasionally in material, are coming to light. One of our readers even wrote us that he was so busy he didn't have time to read any more.

Code Enforcement

In Pennsylvania a few days ago, I listened to some hours of discussion on the NRA code for the plumbing contracting industry. The discussion showed the lively interest taken in this subject and the hopes held for improvement through code operation. Code progress has been held up while the NRA was working out its enforcement program. Hesitation to fix prices or to limit production has temporarily made NRA codes seem ineffective. Of course, in the long run, business will benefit by not using such artificial methods.

Amending the Code

For the plumbing code, nearly 2,000 men are now in service, charged with the responsibility of securing local compliance. Over a quarter of a million dollars has been paid back by those who hoped to avoid the wage clauses. The local bargaining agreements offer the way to secure necessary adjustments in the national code. For that reason we are glad to offer readers, in this issue, a complete report of the Denver agreement, the first to be made and so far the only one definitely approved. It shows you just what you can do locally in securing a modification of code provisions which may not be suitable for your locality.

A Good Soldier

The sudden death of R. G. Thomas of Texas took place while he was hurrying from a National Board meeting to deliver a talk before a local association in his home state of Texas. Thus he died in service. Few men have been more active, day in and day out for so many years in supporting association activities. He had won the respect and friendship of his associates and of many hundreds throughout the industry who recognized his sincerity in working for business improvement through association development.

Win Prizes

More readers are using the program of the Federal Housing Administration to get modernizing orders. They report to us what you hear on all sides, that they arouse interest by explaining the new low cost loan plan—but most of the resulting jobs go for cash. And some more successful dealers are awarded prizes for this month in the DOMESTIC ENGINEERING campaign.

You Can Win

This issue does more than tell you of prize winners. It tells you how they are doing it. As you could expect, not much mystery in their methods, just alertness, activity and work. But how they mix these ingredients is interesting. And you can do as well—so write me about your new orders.

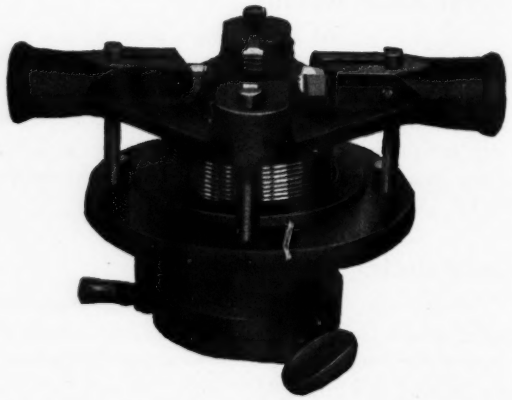
Your Editor

"TOLEDO"
TRADE-MARK REGISTERED U.S. PAT. OFFICE

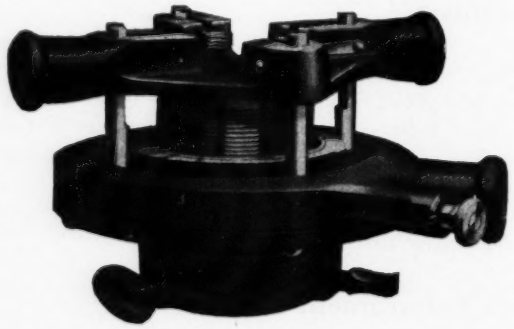
ANNOUNCES NEW LOW PRICES
ON
"TOLEDO" No. 1 AND No. 1A 1" TO 2" THREADERS

"TOLEDO"—the recognized leader of all pipe tools—announces new low net prices on these popular No. 1 and 1A tools threading 1" to 2" pipe. Increased demand and greater production makes possible these new prices at which you can purchase these popular "TOLEDO" tools from your distributor.

Leaders for over thirty years, "TOLEDO'S" popularity must be and is deserved. "TOLEDOS" are not only the most practical and perfectly designed pipe tools on the market today as they were when first introduced in 1902, but as then, they have built into them an inherent quality that is recognized by all experienced operators. No yearly models but constant improvements during all of these years have put "TOLEDO" far out in front in the manufacture of pipe tools and pipe machines. The "TOLEDO" line is complete and meets your every need.



"TOLEDO" No. 1—1" to 2" ADJ. PIPE THREADER NET PRICE COMPLETE . . . $9.00



"TOLEDO" No. 1A—1" to 2" ADJ. RATCHET PIPE THREADER NET PRICE COMPLETE . . $11.25

All F. O. B. Toledo or Distributors Stocks

GENUINE "TOLEDO" TOOLS ARE MADE ONLY BY

THE TOLEDO PIPE THREADING MACHINE CO. TOLEDO, OHIO

New York Office: 72 Lafayette St.

OUR INDUSTRY

December, 1934

Sells More Goods

"The plumber is a more powerful factor in this industry today than he has been for a long time." This remark, made by the responsible executive of a large manufacturing company, is significant for two reasons. He could prove his statement in a manner which any manufacturer must accept. His recent change in policy, which had given the plumber somewhere near an equal competitive position, increased that manufacturer's business well over 100 per cent last month. The increase came principally in those lines where mail order and direct-to-you competition had been most successful before.

The comment is further significant because it indicates that after six to eight years of experimentation, trying to adapt successful methods of other industries to ours, more of us are now realizing that we have in the established plumbing and heating contractor-dealer a sales outlet with many exclusive advantages. He should be utilized, not criticized.

U. S. Helps Building

Billions of dollars are promised in the future efforts of the federal government to help business. The familiar effort to prime the pump, by which business has been offered aid in the past year or two, is more and more turning toward the assistance of the building industry as a fundamental element in general business reconstruction.

The first phase of the work of the Federal Housing Administration is becoming familiar to all of us. That relates to modernizing, to making loans for home repairs easier to get. Three months of this national better housing program has proved to all of us that it is bringing business.

Now the same administration announces plans for title II covering the insurance of mortgages. This ultimately should be of even greater importance than the modernizing program because it is an effort to make over American mortgage practices, to relieve the borrower from unnecessary charges, to remove second mortgages by providing higher first mortgages on an amortizing basis. Cleaning up the mortgage market and re-establishing it on a better and more equitable basis means much to the building industries.

Other government aids are coming through public works proposals, slum clearances, subsistence homesteads. In the aggregate, they testify to the growing realization that this country needs better homes and in providing such improved living standards, not only the building industry benefits, but every industry.

Too Many Orders

In studying business signs for promise of better days, most of us turn to accepted yardsticks. These usually measure broad trends in basic industries.

This rule is sound and in our present state of economic progress few if any better rules for business guidance have been discovered.

At the same time some developments of small importance in themselves but significant as a group, show which way the business current is flowing.

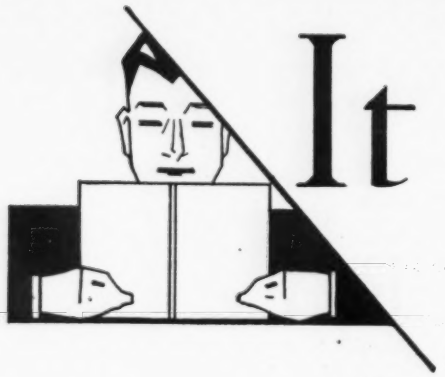
The other day our circulation department sent to the editor's desk paragraphs taken from three letters just received. Here they are:

From Michigan: "When poor business forced me to let my subscription expire, you sent the magazine for several months. Now things are better and in ordering a two year's subscription, I want you to deduct the several months you gave me before. Then everything will be square."

From New Brunswick, Canada: "I used to be a subscriber to DOMESTIC ENGINEERING but had to drop out a few years ago. Now I am able to take it up again and want it as it is the best magazine on plumbing and heating that I ever read."

From Connecticut: "Business is so good I have no time to read any of my weekly or monthly papers."

With the upswing in business indicated by these three letters from one morning's mail, we feel good enough to forgive the Connecticut dealer for using an excuse that has been missing from the files since 1929.



It happened

N. A. M. P. Directors Hold First Meeting In Washington

Put Calnan in Charge of Chicago Convention and Exposition

President John J. Calnan, of the National Association of Master Plumbers, presided in Washington, on Nov. 21 and 22, over the first meeting of his board of directors. With most of the association officials present and with a number of important questions brought up for discussion and decision, the meeting turned out to be an important one. The following digest of action taken at this board meeting comes from National Association of Master Plumbers headquarters.

The President was aided by George W. Frank, vice president, and Charles E. Gawne, secretary. The following board members were present, in addition to the officers already mentioned: H. O. Green, treasurer, Robert J. Barrett, P. W. Donoghue, E. B. Kleine, L. J. Kruse, D. A. Mayfield, J. J. Shanahan, Jere Sheehan, Jr., R. G. Thomas, George Werner and W. C. Williams. James Smyth from Spokane, Wash., was unavoidably prevented from attending. Executive Secretary Joseph G. Hildebrand and Peter M. Munn, secretary to the President, acted as aides to President Calnan during the meeting. The meeting was an outstanding example of careful preparation and expeditious handling. The chairmen of all the standing committees were in attendance, except R. J. Welch of Lowell, Mass., whose illness prevented his being there.

The board conferred broad powers on President Calnan to make arrangements for the forthcoming national convention and exposition, which will be held in Chicago. The President has not as yet made his decision on the date of the convention, or the headquarters—but the question raised at the last convention as to the advisability of an exposition has been definitely decided in favor of an exposition.

Chairman Henry O'Callaghan gave an exhaustive report on the activities of the conference committee, and outlined for the board's consideration and approval an extensive program for the coming period. Those conversant with association affairs have recognized the increasing importance and influence of the conference committee and its prompt grappling with the realities of the present situation in our industry. Chairman O'Callaghan and the members of his committee, as evidenced by his report, have departed from an idealistic conception of the industry, and are right down to bedrock in facing the facts. Their effort will do much to augment the coordinated efforts of the state and local conference committees, which it is President Calnan's desire to especially feature during his administration.

The sanitary committee, through its chairman, A. R. McGonegal, received the board's approval for its efforts in the development of a manual of procedure on how to secure proper sanitary codes and regulations. An outline of the manual, and the preliminary chapters, were presented to the board.

A report from Mr. Welch brought the board up to date on the activities of the scholarship committee. A recent visit of the members of the committee to Carnegie Institute of Technology familiarized them with the curriculum, and enabled them to discuss with the school authorities the possibility of changing the curriculum

(Continued on Page 122)

National Secretary Charles E. Gawne and National President John J. Calnan

this month!

C. S. A. Membership Grows

The Central Supply Association, recently re-organized with only wholesalers as members, has been carrying forward a membership campaign. This campaign has been making progress so that the roll of membership has now reached a total of 210 which includes 15 members from Iowa, 8 from Minnesota, and 6 from Nebraska.

Recent elections give representation to those states as follows: P. J. Frey of the Central Supply Co. of Minneapolis, now represents Minnesota on the association's executive committee; E. I. Leighton of the Leighton Supply Co., Fort Dodge, Iowa, represents Iowa, and A. J. Suiter of the United States Supply Co., Omaha, represents Nebraska.

Bernard D. Kurtz, secretary and sales manager of the L. H. Kurtz Co., Des Moines, Iowa, has been elected treasurer of the Central Supply Association.

Elect to Wholesaler Code Authority

A special committee appointed by wholesalers is now conducting an election to the permanent code authority of the wholesaling industry. This permanent authority will be organized to administer the code of fair competition for the industry of wholesaling plumbing and heating supplies.

Sue to Collect Code Dues

Collecting fees for the use of code authorities has been quite naturally a problem in every industry. For that reason both those who collect fees and those who pay them will be interested in the suits just filed in Chicago against nine lamp manufacturers who have not paid assessments for supporting the code authority of the portable electric lamp and shade industry.

The suits are regarded as test cases, decision on which will have a definite effect on the action of code authorities in the plumbing and heating as well as in all other industries. The attorney for the code authority claims that 80 per cent of the members are paying their assessments and others will be sued for the one-half of 1 per cent on gross monthly sales required by that code.

Thomas of Texas Dies Suddenly

R. G. Thomas, San Antonio, Texas, died suddenly on Saturday, Nov. 24 at St. Louis, in his 68th year. He was hastening from the meeting of the board of directors of the National Association of Master Plumbers at Washington to address a meeting in Galveston, Texas, when stricken with a sudden heart attack which proved fatal. Mr. Thomas was born in Wales and came to Texas in 1889.

For many years Mr. Thomas had been an exceptionally active association worker. He had traveled continuously over his own big state as well as in surrounding states, talking before many audiences and always struggling for the advancement of the local, state and national associations.

R. G. Thomas

He had held all of the offices of his local and state associations and had served several terms as a director of the national association, the office which he held at the time of his death. He was also serving as NRA code executive for Texas.

The national officers took charge as soon as notified, Director Jere Sheehan handling arrangements at St. Louis.

Delegations from various cities in Texas attended the funeral which was held in San Antonio Nov. 28. The local plumbing establishments were closed during the funeral hour. Two brothers and two sisters survive him. His wife died three years ago.

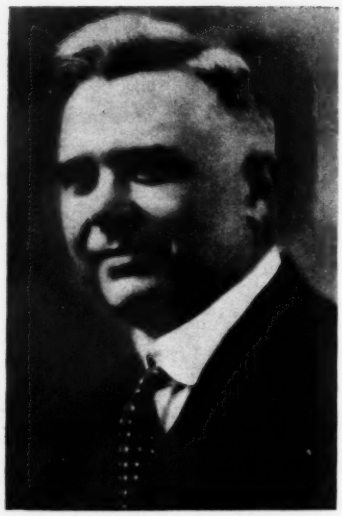
800 at St. Louis Code Meeting

The code compliance committee for St. Louis, located at Room 114, Olivia Building, 1023 N. Grand Ave., with a bid depository in the Cass Bank & Trust Co., 1450 N. 13th St., St. Louis, held a mass meeting on Nov. 19 with an attendance of about 800 plumbers. The code compliance officer of the NRA explained the duties and responsibilities of all plumbers connected with the industry to make the code successful.

The details of operation of the bid depository, which was set up and became operative on Nov. 21, were explained by Edward Monteath, state executive, and by R. E. Jarvis of the local code authority, Zone No. 3. Each speaker was given marked attention.

Through the fair trade practice rules outlined in the plumbing code, St. Louis officials point out that a marked improvement in business methods on the part of the rank and file of the plumbers is anticipated.

If you feel that your code or some part of it works a hardship, you will find that an area agreement offers the way to meet local conditions. This has been done in Denver and the following article in analyzing this first local agreement, shows what you can do now in modifying the national code



The executive direction of the plumbing contractors' code is in charge of Robert J. Barrett, Washington, D. C.

First Area Agreement Makes Code Fit Local Needs

OWING to the fact that the provisions for wages, hours and working conditions, as made in the Code of Fair Competition for the Plumbing Contracting Division of the Construction Industry, have met with serious opposition in many localities, what are known as area agreements are now in process of formulation in various sections of the country. The idea of this is to modify the Code so as to make it fit local and special conditions. One area agreement has been worked out and has been approved by President Roosevelt. The only other area agreement which has had a public hearing, is the one for Buffalo, N. Y., and its environs. This area agreement is now in the hands of the National Recovery Administration, and is on way to obtain presidential approval. A state-wide area agreement is now being worked on for the state of New Jersey, but has not reached the point where a public hearing can be held.

ONLY WAY TO CHANGE WAGES AND HOURS

The principal advantage in area agreements is that it affords opportunity to either change or amplify the wage, hour, and condition of employment clauses in the Code to meet local conditions. Where a proper area agreement is entered into, the wages may be increased or decreased, hours lengthened or shortened, and conditions of employment, such as listing tools to be furnished by journeymen, transportation questions, and other matters made binding on all members of the Division with equal force and effect.

The area agreement is a logical development of the old collective bargaining plan, which was prevalent in the industry between union journeymen and their employers. In these collective bargaining agreements the provisions were only binding on the actual participants, while in area agreements under the Code the provisions arrived at in area agreements are binding on all members of the Division, and all employees, regardless of their actual participation in the area agreement. It should be pointed out, however, that in order to secure presidential approval of an area agreement the truly representative character of the two parties to the agreement must be unmistakably established. We are advised by the National Recovery Administration that in establishing such a truly representing character, two factors are considered, (a) numerical majority, and, (b) majority by volume. As an example, if a group of master plumbers, representing 60 per cent of the number of those engaged in the business in a given area, applies for an area agreement, and it is learned that this 60 per cent does 90 per cent of the total plumbing volume in the area, the National Recovery Administration adds the 60 per cent and the 90 per cent together, divides by two, arriving at a 75 per cent representation. The representative character of employees is determined purely on a numerical basis.

In discussing this matter Ernst L. Flentje, assistant executive director of the Code Authority of the Plumbing Contracting Division, says:

"It appears to me opportune at this time to stress the advantages of area agreements because it is apparent that the area agreement is the only way acceptable to the National Recovery Administration for changing the

wage and hour provisions of the Code. It is my opinion that those who apply for exemptions from the wage and hour provisions of the Code will be asked to enter into area agreements. It should be borne in mind that whenever an area agreement proposes a reduction in the wage provisions of the Code, or proposes an increase above the hour minimum prescribed, it will be necessary to grant an exemption to the members of the Division in the area before the new conditions, as embodied in the agreement, can be made effective. Such exemptions are granted only after it has been definitely determined that the area agreement will receive presidential approval."

DIFFICULTY IN AREA AGREEMENTS

One of the chief difficulties encountered in arriving at area agreements is that no one seems to wish to take the initiative. Members of the Division are in many cases reluctant to initiate action because they are under the impression that initiating action implies increasing the wages or decreasing the hours made mandatory by the Code. Employees are reluctant to take the initiative through the mistaken impression that such initiation will imply a weakness on their part. Someone has to start the activity, when the Code provisions are unsatisfactory and starting the activity does not in any way obligate either the individuals or the group. Some area agreements are started which are never consummated because of the diametrically opposed interests of the participants. In other words, even where an agreement seems desirable, lethargy has quite often prevented its consummation.

E. L. Flentje worked first to get the plumbing code and now is working to administer it

As this question of area agreements or regional collective bargaining agreements is of special interest to many readers of DOMESTIC ENGINEERING, we take pleasure in giving the following excerpts from the Regional Bargaining Agreement for Denver, Col., Plumbing Contracting Industry, as approved by President Roosevelt on October 17, 1934. Although this has been worked out to fit the particular conditions in Denver, the general plan contains much of application to other localities. In any event this can serve as a guide in working out other area agreements:

This is an agreement between members of the Division of the Plumbing Contracting Division of the Construction Industry and their journeyman plumber, gasfitter, and apprentice employees in the city and County of Denver and surrounding Counties in Colorado.

WHEREAS Title I, Section 7(b) of the National Industrial Recovery Act and the Code of Fair Competition for the Construction Industry provide for agreements to be approved by the President, providing for standards of hours, wages, and other conditions of employment, such agreements to be made by truly representative groups of employers and employees; and

WHEREAS the Denver Master Plumbers Association and a group of master plumbers are truly representative groups of employers of journeyman plumbers, gasfitters, and apprentices in the Region hereinafter defined; and

WHEREAS the United Association of Plumbers and Gasfitters Unity Local No. 3, Denver, Colorado, and a group of journeyman plumber, gasfitter and apprentice employees are truly representative groups of the journeyman plumber, gasfitter and apprentice employees in the Region hereinafter defined; and

STANDARDS OF HOURS AND WAGES BINDING

WHEREAS such truly representative groups of employers and employees in the Region below defined, having complied with all the necessary provisions relating to such agreements provided in such Act and Code, now desire to enter into such an agreement and to obtain the approval of the President thereto in order that the standards of hours, wages, and other conditions of employment shall bind all employers who are members of the Division as hereinafter defined and their journeyman plumber, gasfitter and apprentice employees and no others in the Region hereinafter defined; and

WHEREAS such standards provided in such agreement are necessary to effectuate the policy of Title I of the National Industrial Recovery Act in said region.

NOW, THEREFORE, THIS AGREEMENT WITNESSETH:

That in consideration of the premises, and of the mutual agreements herein contained, and in order to accomplish the objects and purposes hereinabove set forth, the parties hereto agree each with each other and with all the others as follows:

ARTICLE I.—DEFINITIONS.

SECTION 1. MEMBER IN THE REGION. The term "member in the region" as used herein means any member of the Division as hereinafter defined who is an employer engaged in any phase or undertaking to perform any function of a member of the Division in the Region hereinafter defined.

SECTION 2. MEMBER OF THE DIVISION. The term "member of the Division" includes any individual or form of organization or enterprise engaged in any phase or undertaking to perform any functions of the Plumbing Contracting Division.

SECTION 3. PLUMBING CONTRACTING DIVISION. The term "Plumbing Contracting Division" or "Division" as used herein includes selling to consumers and/or repairing or installing, for profit or hire, all types of plumbing equipment and fixtures, including water supply systems or parts thereof, drainage systems or parts thereof, plumbing connections to air conditioning systems, air and gas piping, gas and gasoline piping, vacuum cleaning systems or parts thereof, and such

other piping and equipment as is commonly handled by master plumbers, and all other articles pertaining to plumbing.

SECTION 4. (a) JOURNEYMAN. "Journeyman" means any employee working as a journeyman plumber or gasfitter, (1) who has served at least five (5) years as an apprentice on work as covered by the definition of the Plumbing Contracting Division, or (2) who is qualified by an examination to do said work, or (3) who has a State or Municipal license (where required) to do said work as a journeyman plumber or gasfitter.

(b) APPRENTICE. The term "Apprentice" as used herein, is an employee undergoing a system or course of training, whose age when starting his apprenticeship is over eighteen (18) but not over twenty-one (21) years. The term of apprenticeship shall not exceed a period of five (5) years.

SECTION 5. REGION. The Region in which this agreement is effective is the Counties of Denver, Gilpin, Clear Creek, Jefferson, Adams, Arapahoe, Douglas, Elbert, Lincoln and Kit Carson, all in the State of Colorado.

ARTICLE II.—HOURS.

SECTION 1. HOURS. No journeyman or apprentice shall work or be permitted to work in excess of thirty-five (35) hours in one (1) week, seven (7) hours in any twenty-four (24) hour period, or five (5) days, from Monday to Friday, inclusive, in any seven (7) day period, except as provided in Sections 3 and 5 hereof. Regular hours are from 8:30 a. m. to 4:30 p. m., including one (1) hour off for lunch. By mutual agreement a member in the Region and his journeyman and apprentice employees may establish regular hours on a job of from 8:30 a. m. to 4:00 p. m. with one-half hour off for lunch.

SECTION 2. HOLIDAYS. No journeyman or apprentice shall work or be permitted to work on Saturdays, Sundays, New Year's Day, Decoration Day, Independence Day, Labor Day, Armistice Day, Thanksgiving Day or Christmas Day, except as provided in Section 3 and 5 hereof.

SECTION 3. EXCEPTIONS. Journeymen and apprentices may work and may be permitted to work on the days excepted in Section 2 hereof or outside regular hours on emergency work. Convenience shall not be construed as emergency. Nothing in the section shall permit any journeyman or apprentice working or being permitted to work in excess of the weekly maximum provided in Section 1 hereof.

SECTION 4. EMPLOYMENT BY OTHERS. No members in the Region shall knowingly permit any jouneyman or apprentice to work and no journeyman or apprentice shall work for any time which, when added to the time spent at work for another member in the Region, or otherwise, exceeds the hourly, daily, or weekly maxima permitted herein.

SECTION 5. EMERGENCIES. The provisions of the preceding sections of this article are not applicable to cases involving danger to life or property.

ARTICLE III.—WAGES.

SECTION 1. WAGES. (a) The rate of wages for journeymen shall not be less than One Dollar and Fourteen and Two-sevenths Cents ($1.14 2/7) per hour for employment during regular hours.

(b) The rate of wages for apprentices shall be not less than Twelve Dollars ($12.00) per week during the first year, Fourteen Dollars ($14.00) per week during the second year, Eighteen Dollars ($18.00) per week during the third year, Twenty Dollars ($20.00) per week during the fourth year, and Twenty-five Dollars ($25.00) per week during the fifth year.

SECTION 2. OVERTIME. All overtime shall be at two times the rate for regular hours. "Overtime" means any time spent working over seven (7) hours in any twenty-four (24) period or outside regular hours, and also any work performed on the days excepted in Section 2, Article II, hereof, except on emergency work provided for in Sections 3 and 5 Article II, hereof, the rate of wages shall be as for regular hours from 8:30 a. m. to 6:00 p. m. on Monday to Friday, both inclusive, and from 8:30 a. m. to noon on Saturday. At least two (2) hours' wages shall accrue to journeymen ordered to report and reporting for emergency work on the days excepted in Section 2, Article II, hereof.

SECTION 3. PAYMENT. (a) All wages due shall be payable in lawful currency or by negotiable check payable on demand at par. If payment is made by check, the employing member in the Region shall provide reasonable facilities, including identification, for cashing such checks at face value without charge or discount to the employee.

(b) Wages shall be due and payable during working hours on Friday, and not later than 4:30 p. m. for work done up to and including 4:30 p. m. of the preceding Thursday. Should Friday be one of the days noted in Article II, Section 3, hereof, wages shall be due and payable on Thursday and not later than 4:30 p. m. for work done up to and including 4:30 p. m. of the preceding Wednesday.

(c) If a journeyman or apprentice is discharged, all accrued wages shall be due and payable immediately.

Should work be stopped for any cause beyond the control of members in the Region or their journeyman or apprentice employees and if journeyman or apprentice employees demand their accrued wages, these wages shall be due and payable within three (3) banking hours after the time the demand is made upon the employing member in the Region.

ARTICLE IV.—CONDITIONS OF EMPLOYMENT.

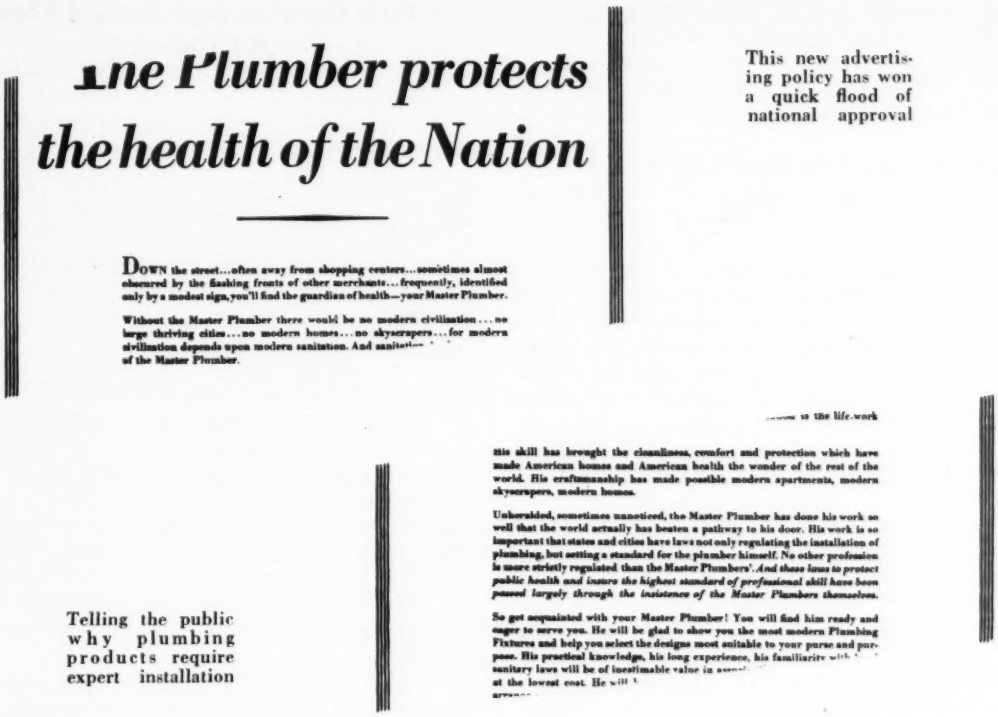
SECTION 1. SAFETY. Members in the Region shall comply with all applicable Federal and State laws and Municipal ordinances pertaining to safety and sanitary conditions.

SECTION 2. CONTRACTING. No member in the Region shall directly or indirectly let or lump solely the labor services required by any contract of such member.

SECTION 3. TOOLS. Each journeyman shall provide himself with a kit of hand tools consisting of the tools necessary for the roughing, finishing, or otherwise carrying on the work of a journeyman, except cutting tools, furnaces and wrenches eighteen inches and over in length.

SECTION 4. MEMBER PERFORMING WORK. Any member in the Region shall be subject to the maximum

(Continued on Page 135)



The Plumber protects the health of the Nation

DOWN the street...often away from shopping centers...sometimes almost obscured by the flashing fronts of other merchants...frequently, identified only by a modest sign, you'll find the guardian of health—your Master Plumber.

Without the Master Plumber there would be no modern civilization...no large thriving cities...no modern homes...no skyscrapers...for modern civilization depends upon modern sanitation. And sanitation ... of the Master Plumber.

...ce to the life-work

...his skill has brought the cleanliness, comfort and protection which have made American homes and American health the wonder of the rest of the world. His craftsmanship has made possible modern apartments, modern skyscrapers, modern homes.

Unheralded, sometimes unnoticed, the Master Plumber has done his work so well that the world actually has beaten a pathway to his door. His work is so important that states and cities have laws not only regulating the installation of plumbing, but setting a standard for the plumber himself. No other profession is more strictly regulated than the Master Plumbers'. *And these laws to protect public health and insure the highest standard of professional skill have been passed largely through the insistence of the Master Plumbers themselves.*

So get acquainted with your Master Plumber! You will find him ready and eager to serve you. He will be glad to show you the most modern Plumbing Fixtures and help you select the designs most suitable to your purse and purpose. His practical knowledge, his long experience, his familiarity with ... sanitary laws will be of inestimable value in ... at the lowest cost. He will ... arrange ...

This new advertising policy has won a quick flood of national approval

Telling the public why plumbing products require expert installation

Advertising Plumbers to Public Helps Business

VIGOROUS support from every branch of the industry has rallied in the past few weeks to the program which President John J. Calnan, of the National Association of Master Plumbers, has been urging—better codes, better installations and a better job of arousing the public to the advantages of properly installed plumbing products. This program, with its emphasis on the strong points of the established industry, is rallying contractors, wholesalers and manufacturers who see it as the answer to the problem of meeting other types of distribution who prefer to compete on a price basis.

Mr. Calnan's analysis of our industry's problems and his suggestions for meeting them, were given in an important article in the October issue of Domestic Engineering. A short time later, the Standard Sanitary Mfg. Co. started a series of newspaper advertisements stressing the fact that the best service from plumbing products required expert installation by qualified master plumbers. The reaction has been prompt, national in scope, and favorable.

To crystallize these developments, Domestic Engineering presents the following letters in which students of the industry analyze the merits of the steps taken so far and suggest further lines of progress. These letters come to our readers from outstanding men in the contracting, wholesaling and manufacturing divisions of our industry.

New Advertising Policy Wins Calnan's Support

TO THE EDITOR:

I am in receipt of your letter calling attention to the viewpoints of the writer as expressed in his C. S. A. address and published in the October issue of DOMESTIC ENGINEERING.

It is very gratifying to note that the general advertising of the Standard Sanitary Mfg. Co. over the signa-

ture of its president, Henry M. Reed, as well as the new type of wholesaler local advertising conform to a large extent with the views expressed by the undersigned.

(Signed) JOHN J. CALNAN, Chicago,
President, National Association of Master Plumbers.

Trade Supports Standard's New Advertising

TO THE EDITOR:

Thanks very much for your letter of Oct. 25, commenting on our newspaper advertising campaign. I am glad to say that we have received some wonderful letters from the trade, from practically every section of the country. We appreciate the sentiments contained in your letter and hope that with the continuation of our various campaigns that eventually we will impress upon the public the necessity of calling on their plumber the same as they would their doctor, to protect not only the health of their own family but of the community at large.

We appreciate the importance you have given to our advertisements and take this opportunity to thank you.

(Signed) H. M. REED,
President, Standard Sanitary
Mfg. Co., Pittsburgh, Pa.

Wholesaler Will Do His Part

TO THE EDITOR:

Replying to your letter of Nov. 10, referring to an article published in your October issue written by John J. Calnan, President of the National Association of Master Plumbers, will say that we are very much in favor of a closer co-operation between the three branches of the plumbing and heating industry.

Not only in co-operative advertising but also in a national movement to write into the laws of our land proper sanitary regulations for the government of the industry and the protection of the public.

The writer is of the firm opinion that had the three branches of the industry co-operated in years gone by in the writing of such sanitary laws, today we would not only be in a much more favorable position in regard to certain destructive elements that have crept into the industry but that we also would have a much higher place in the regard of the public in general.

We hope to see shortly proper sanitary ordinances in all cities of 5,000 population or over, backing up state laws which should be uniform if possible throughout the United States.

In a co-operative movement of this kind we are very positive that you will find the wholesaler doing his bit.

We might say that in our own community the wholesalers and the plumbers are at the present time carrying on co-operative advertising.

If we can demonstrate that there is a possibility of the three branches of the industry co-operating in advertising and in a movement for better sanitary laws, we believe that we can also be assured that each branch will operate in its own field and respect the functions of the other branches, thus bringing about a better condition in the industry.

(Signed) W. E. PRICE,*
The Knapp Supply Co., Muncie, Ind.

*Mr. Price is President of the Central Supply Association.

Public Obtains Best Service Through Our Industry

TO THE EDITOR:

The awakening of all branches of the plumbing and heating industry is more pronounced today than ever. Let us continue this co-operation for economic progress and in a spirit of fair dealing. Manufacturers, wholesalers and master plumbers will have a wonderful opportunity to meet all outside competition now hampering our progress and developments. We have for years been building for more healthful and better sanitary conditions for our people.

The publicity activities of the Plumbing and Heating Industries Bureau have long been recognized as a splendid medium through which our industry has been kept before the American people, through the means of newspapers, magazines and radio publicity on the advances and improvements in plumbing and heating equipment. This publicity justifies the replacement of obsolete equipments with new fixtures and materials, points out the danger in antiquated plumbing, and shows the necessity for property owners to take every precaution to see that their plumbing is properly installed and kept in good condition.

We now have our leading manufacturers, with years of experience in producing and merchandising the highest quality of plumbing and heating materials at no greater cost than those of inferior make and with guarantees that have been made good, recommending that installation be made by competent and reliable master plumbers. This further assures the American people of the greater service that only our channels of distribution can provide with good sanitary plumbing and perfect heating.

Experience is our greatest teacher. It is for this reason that the master plumber hesitates, and is warranted in doing so, when manufacturers of new materials and equipments that do not come up to the standard of those of our leading manufacturers refuse to put emphasis on the problem of service after installation. I heartily endorse President Calnan in his unceasing efforts to bring about a better understanding between all branches of our industry, his urgent demands for new codes and the strict enforcement of such codes and his earnest appeal to all master plumbers to respect the best ethics of good business.

(Signed) George W. Frank,
Buffalo, N. Y.,
Vice-President,
National Association of Master Plumbers.

Manufacturers Have Started— Wholesalers Should Follow

TO THE EDITOR:

Replying to your communication of Nov. 9, seeking the reaction of the contracting branch of the industry to the new advertising policy of the Standard Sanitary Mfg. Co., as reflected in the two advertisements carried in the daily press in this section of the country for the past four or five weeks.

This advertising matter, as far as I can determine,

has met with the unanimous approval of the trade. As one large operator in this section expressed to me a few days ago, "It is almost too good to be true."

For the first time in my memory, the manufacturer has publicly acknowledged in its advertising matter that proper installation of its manufactured product is a prime factor in good plumbing.

I have read the various articles submitted to the trade press by National President John J. Calnan, and the contracting branch is indebted to him for the splendid job he has done in the short period he has been in office.

I have read your editorial of November and you have covered the subject in full. It is a splendid editorial and to the point. The subdivisions of your editorial have brought out every point that we have emphasized for so many years.

If the wholesalers in the industry will join with the manufacturing and contracting branches and carry on in a similar manner, placing before the public the importance of proper installation, in my opinion, it will go a long way toward removing any ill feeling that has existed between the contracting branch of the industry and the wholesalers.

(Signed) P. W. DONOGHUE,*
Boston, Mass.

*Mr. Donoghue is a past president of the National Association of Master Plumbers.

Best Move Made to Promote Welfare of Industry

TO THE EDITOR:

The advertising of plumbing fixtures which has been appearing in the trade press and also the daily newspapers by the Standard Sanitary Mfg. Co. is an outstanding improvement over anything appearing before in this industry.

It calls the attention of the prospective buyer to the fact that surface finish is not the only consideration that is to be given for the successful operation of the installation.

It calls attention of the buyer to the proper installation by a licensed plumber, who has specialized in this work.

It attracts the attention of the buyer to the importance of proper installation regarding health and sanitation in addition to successful operation of the fixtures.

Heretofore, the established manufacturer of plumbing fixtures who advertised fixtures on a price list became the victim of target practice for the mail order or other direct-to-you house to shoot at.

The Standard Sanitary Mfg. Co. is to be commended upon this advanced move which will be the most beneficial move made to improve the conditions of the contractor, the wholesaler, and the manufacturer, to put the sale of plumbing fixtures where they rightfully belong and the installation to those who are qualified to install with the best results and most satisfaction to the purchaser.

It also is a move that should receive the endorsement of those that have the best interest of the industry and its future in consideration.

(Signed) JERE SHEEHAN,*
St. Louis, Mo.

*Mr. Sheehan is a past president of the National Association of Master Plumbers.

Urges Prompt Action on Calnan's Program

TO THE EDITOR:

President Calnan is right. He has sounded a timely warning to both wholesalers and master plumbers. The opportunity is here, there is no time to waste. Steps should be taken at once to set up a National Conference Committee and plans developed for nation-wide cooperation between the three branches of our industry. I favor the immediate establishment of a Code of Ethics covering the sale and distribution of our industry's products. All those who believe in this code can subscribe to it and should immediately cooperate with all others who have taken the same step. Plans for consistent advertising, both national and local, should be worked out, stressing in particular the importance of good installations and their relation to sanitation and health.

Sanitary codes should be strengthened and enforced, close cooperation with local and state health boards established. I believe that this is the only way that we can hope to retain quality products and installations. This is not only an opportunity, it is an obligation that rests upon each one of us. The public has a right to demand the maximum in quality, service, and protection from our industry. We owe it to them, to our industry and to ourselves. We can not hope for a more opportune time to start the ball rolling, all branches are awakened to the truths Mr. Calnan has so ably set forth in his address.

With the support of all state and local groups in such a move, I am sure surprising results would follow immediately.

(Signed) H. O. NELSON,*
Nelson Co., Detroit, Mich.

*Mr. Nelson is a past president of the Central Supply Association.

Shanahan Approves New Policy

TO THE EDITOR:

You may be sure that any recognition on the part of the manufacturer or our wholesale interests, that the method of distribution should be from the plumbing contractor to the consumer meets with my hearty approval.

(Signed) John J. Shanahan,
Norfolk, Va.,
Director,
National Association of Master Plumbers.

Policy Helps Manufacturer, Dealer and Public

TO THE EDITOR:

I have read with a great deal of interest the article by John J. Calnan, President of the National Association of Master Plumbers, to which you called my attention in your letter of Nov. 9. I have also referred to the advertisement by one of the large manufacturers in the plumbing industry to which you referred. Previous to seeing the reproduction of this advertisement in DOMESTIC ENGINEERING, I had noticed it in some of the leading newspapers and I was immediately interested in the emphasis which was placed through the advertisement upon the importance of having plumbing work done by qualified master plumbers. I venture the assertion that this policy

will prove profitable and wise for this manufacturer, because in addition to building customer good will, it gives sound and constructive advice to the buying public.

It is my hope that this same policy will be reflected to a much larger degree than has been the case in the past in the national and newspaper advertising of the manufacturers in our industry. It is my firm belief, based on careful study of the merchandising problems of our industry, that such a policy of cooperation with the contractor is mutually profitable to the manufacturer and contractor and likewise serves the very best interests of the consuming public.

(Signed) J. Lawrence De Neille,
St. Louis,
President,
Heating, Piping and Air Conditioning Contractors National Association.

Co-operation Will Bring More Business

To the Editor:

I have read the article in the October issue of Domestic Engineering covering the speech by Mr. John J. Calnan, President of the National Association, before the last meeting of the Central Supply Association.

Mr. Calnan has made a careful study of the possibilities of the development of the plumbing fixtures industry, and any suggestions he makes are entitled to the fullest consideration by those engaged in this industry.

We thoroughly endorse his efforts to bring about a closer and more cooperating action by the manufacturer, the wholesaler, and the plumber.

The people of America are becoming more home modernizing conscious than ever before, and such close cooperation among the agencies doing business in the regular way should redound to the benefit of those actively participating.

(Signed) Walter J. Kohler,
President, Kohler Co., Kohler, Wis.

Stress Public Service Rather Than Imitate Price

To the Editor:

It is most gratifying to note the real evidences that we are returning to those tried and proven principles, in the plumbing and heating industries, which had so much to do with the successful operation of these industries in the past.

The rather obvious fact, that good material requires

(Continued on Page 133)

Selling Through Contractors Stands Test of 20 Years

"From the outset we have considered the installation men as the keystone of our selling arch"

By Guy Hutchinson*

Selective selling, of the sort which seeks out the most direct and efficient channel from the manufacturer to the consumer, is no novelty to our company. We have lived with it for twenty years—since the founding of this business—and we like the way it has met the test of trying times.

Rightly conceived sales policies are a constant source of satisfaction. They wear well. They gain strength and sureness in use. They respond like a well-built machine to the demands that are put upon them. Once installed, in well-thought-out form, such policies run smoothly on—needing only to be fueled with effective advertising and promotion, plus a burning desire to create business.

In recent years some manufacturers, hungry for sales and blinded to the future, have become sufficiently short-sighted to look only to today's dollar—ready to make a sale to anybody, just to make a sale.

But it is impossible, they have learned, to do a faulty selling job and forget it. Wrong sales policies have a way of coming home to roost. They are likely to result in a troublesome accumulation of products in some neglected part of the distributive channels. In their train they may leave vocally disgruntled users, particularly if the product is one requiring a knowing touch in its installation.

Manufacturers—likely enough just because they are manufacturers and thus are naturally production-minded—seldom neglect to keep an eye on the straight-line flow of production or the process-by-process inspections that insure a good product. Likewise it behooves them to give sufficient thought to distributive selling, which must also proceed in a straight line and unimpeded and which

(Continued on Page 112)

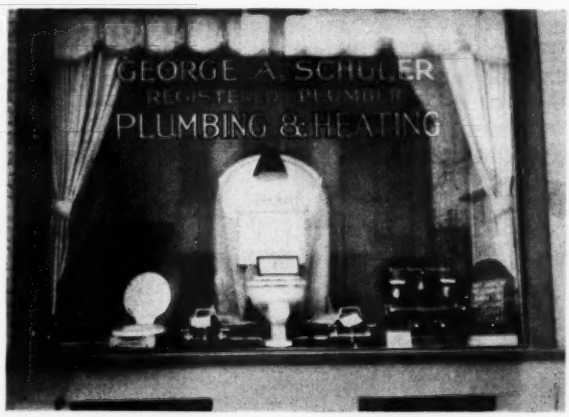
*Vice president and general manager, Hoffman Specialty Co., Inc. Reprinted from *Printers Ink*.

FHA Sales Win Prizes for Six

Reports on Sales Bring New Awards in Domestic Engineering Campaign

INCREASED sales, better employment figures and a steady growth in loans and orders mark the continued progress of the federal housing drive. The nation-wide program has struck and is maintaining a momentum which is bringing increased business. And among those benefiting are plumbing and heating contractors.

Six successful dealers won prizes in the DOMESTIC ENGINEERING housing campaign in November. The following are the names of the six new prize winners for December.



This Pennsylvania dealer reports the FHA program is increasing his business

Wm. Roebel, Jr., Courtland Plumbing & Htg. Co., Fort Wayne, Ind., for his personal initiative and sales skill in turning a small repair job into a $375 remodeling project. [Full details in next issue.]

Dominic J. Piscitelli, Westbury, Long Island, for his promptness in taking advantage of this movement and the immediate cash sales he realized from his alert and timely canvassing.

DOMINIC J. PISCITELLI
Plumbing and Heating
Westbury, L. I.

For years you have been putting up with unsatisfactory plumbing fixtures in your home. You have not felt that you could afford to make the necessary changes because of the plumber's bill.

Under the Federal Housing Administration plan of financing this is all changed. You may now make your home comfortable and pay for the improvements on the monthly plan. In other words, comfort has been made possible.

Let me discuss your plumbing or heating problem with you and show you how easy it will to get what you want.

"I just started after those prospects who I knew needed work done." He got three orders the first month

"Standard"
Get That New Bath Room
Fixtures At Lowest Prices Ever!
No Down Payment!
No Red Tape!
3 Years to Pay
Expert Workmanship
Our manufacturers have reduced fixture prices to new low levels. We urge every home and property owner to take advantage of this opportunity to modernize or add that bath room.
PHONE US FOR ESTIMATE
Armstrong Brothers Plumbing Co.
"Personal Service"
800 Washington Ave.
Phone Cedar-792

"The idea for our ads came from the October issue of Domestic Engineering. We have had mighty good results from our ads"

Arthur Johnson, Berkeley, Calif., for the results secured through newspaper advertisements and circulars, particularly through "checking all old prospects."

D. E. Armstrong, Armstrong Bros. Plumbing Co., Montgomery, Ala., for his use of credit terms in making sales usually winding up as a cash transaction.

George A. Schuler, Allentown, Pa., for his ingenuity in using testimonials to clinch the sale.

J. A. Campbell, Twin Falls, Idaho, for taking advantage of every possible means to increase his sales by get-

• • • WHAT TO DO

Send us a prompt report of a sale you made, a successful sales idea you used, a photograph of your show window, a copy of your advertising, a copy of your sales letter or a good sales suggestion.

This will put you in line for one of the 18 Monthly Prizes, for one of the 90 Book Prizes and for the GRAND PRIZE of $100.

WHAT YOU MAY WIN

A $7.50 Domestic Engineering Plumbing and Heating Catalog and $5.00 in cash.

A $7.50 Domestic Engineering Plumbing and Heating Catalog.

A choice of one of six Books, all among our best sellers.

AND

The Grand Prize of $100.

WHAT WE OFFER

18 Catalogs	$135.00
9 Cash Prizes	45.00
90 Books	90.00
Grand Prize	100.00
TOTAL PRIZES	$370.00

ting the FHA idea across to prospects.

Similar awards—six prizes—will be given in December by DOMESTIC ENGINEERING for the best sales letters, advertisements and sales experiences, received by December 15. Enter the contest now. (See rules on next page.)

And a GRAND PRIZE of $100 will be awarded at the close of the campaign in January.

FHA display by Washington dealer

Pushes Loan Program But Cash Sales Lead

QUICKLY sensing the importance and the many benefits to be derived from the Better Housing and Modernization Program of the Federal Housing Administration, Joseph High of Joseph High, Inc., 1215 13th Street, N. W., Washington, D. C., lost no time in tying in with this great plumbing and construction industry stimulant. The results have been astonishing and this, he claims, cannot only be attributed to the direct Federal aid given to those persons who desire financial assistance in the way of home improvements, but also to the enormous amount of advertising carried on by the Government and some of the manufacturers in that direction.

Mr. High has been forced to increase his force 100 per cent, and on an average, ten to twelve requests for estimates are reaching his office daily practically all being above the average in size. How does he do it? Here is his story, briefly:

"When the Government announced its Federal Housing plan, I prophesied that for every dollar the Government would lend, the people would spend from their own pockets two dollars, because the psychology of the Government appeal through advertising would be bound to bring about such an effect. I was not far from the truth, because official figures show that so far the public is matching every dollar loaned to them by

Here Are The Rules • • •

1. **Write a letter telling how you are taking advantage of the Federal Housing Act to sell plumbing or heating equipment.**
2. **Skill in writing will not be considered.**
3. **The enterprise and ingenuity of the dealer in using the F.H.A. to sell plumbing and heating material will be the determining factor.**
4. **The method, preferably, should have resulted in an order although this is not necessary.**
5. **Any contractor or dealer may enter and is eligible for a monthly prize and also for the grand prize. In case of a tie, duplicate prizes will be awarded.**
6. **The judges will be Mr. John J. Calnan, President of N.A.M.P., Charles Gawne, Secretary of N.A.M.P. and Norman J. Radder, Secretary of Plumbing and Heating Industries Bureau. The decision of the judges will be final.**
7. **Letters to be considered for the January award must reach us by noon, December 15th. The monthly prize letters will also be eligible for the grand prize but contestants are limited to one monthly prize.**
8. **All letters received anytime before noon, January 15th, 1935, the final closing date, including monthly prize letters, will be eligible for the grand prize. Contractors may send in more than one entry if desired.**
9. **In order to report promptly to its readers the best and most practical sales ideas, DOMESTIC ENGINEERING has the full privilege to use and publish all or any part of the material received.**
10. **Letters should be sent to the Prize Editor, DOMESTIC ENGINEERING, 1900 Prairie Avenue, Chicago.**

the Government with four dollars of their own. There seemed immediately to appear after the launching of the program a re-awakening of the public in demanding plumbing improvements and additions.

"I did not lose any time, but immediately inserted newspaper advertisements and informed my customers by telephone of my readiness to assist them in cooperating with the Government in putting more men back to work. The results were almost instantaneous, and I find that a surprising number of people are insisting upon cash payments. This has happened so suddenly that we have been unable to complete and put into effect our entire direct advertising plan, which is now being prepared. If the members of the plumbing industry desire to avail themselves of an opportunity, now is the time to act."

The master plumbers, wholesalers and manufacturers in Washington, D. C., have formed a committee to devise ways and means of tying in, to the best effect, with the Federal Housing campaign. A meeting was recently held in the Mayflower Hotel, at which time Mr. High was appointed chairman of the sub-committee to bring in suggestions and recommendations in this direction.

They expect to have an exposition of building materials, including plumbing and heating appliances and fixtures, at Washington in the near future, for the purpose of backing the Federal Housing Campaign.

This New Jersey Dealer Won a D. E. Prize

Prompt action on the FHA program brought John M. Forhecz of New Jersey eight good jobs in the first 45 days

William Beck, Sr. (standing) and William Beck, Jr., have made FHA pay

One of the first prize-winners in the DOMESTIC ENGINEERING campaign to help the national housing movement was William Beck & Son of Englewood, N. J. The information given on these pages explains much of the success met by this company in promoting the sale of plumbing and heating products in connection with better housing.

This material includes selections from the advertisements used by this company and the direct mail matter provided for its customers. An example of its alertness is shown by the news item through which customers

FHA Adds

and prospective customers were told of the company's success in winning a DOMESTIC ENGINEERING prize.

The following brief outline of this company's FHA program was secured for us by a correspondent directly assigned to visit Englewood.

(From a Special Correspondent)

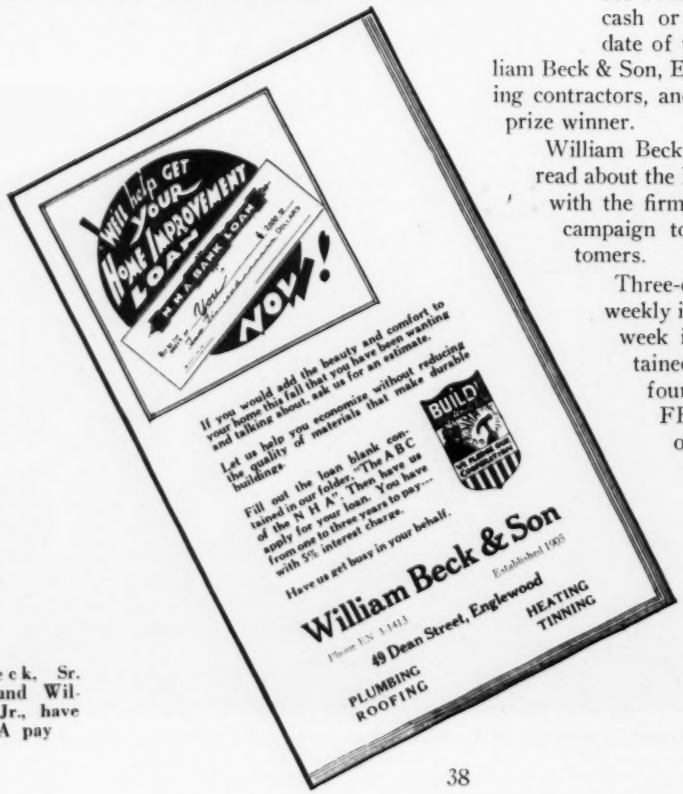
Intelligent advertising and salesmanship increase volume of cash business through FHA appeal.

A large increase in total business volume, yet with only one-third of the jobs sold on the FHA plan and the other two-thirds for cash or acceptable credit, is the result to date of the present FHA campaign of William Beck & Son, Englewood, N. J., plumbing and heating contractors, and an early DOMESTIC ENGINEERING prize winner.

William Beck Jr., a Lehigh University graduate, read about the FHA plan in a newspaper; consulted with the firm's bankers; and wrote a newspaper campaign to sell the idea to prospective customers.

Three-column by 10-inch space was used weekly in a local newspaper, starting the first week in September. No results were obtained the first six weeks, but the next four weeks produced seven jobs on the FHA plan plus fourteen jobs for cash or acceptable credit, a total of about $4,000 worth of business.

Direct mail and personal solicitation of E. N. Ostler, salesman (and an experienced plumber and steamfitter) deserve a considerable share of praise for success of the campaign. Mr. Ostler sends out only such direct mail as he can follow up within the next two or three days by personal call. Mailing


will help GET YOUR HOME IMPROVEMENT LOAN
NOW!
If you would add the beauty and comfort to your home this fall that you have been wanting and talking about, ask us for an estimate.
Let us help you economize without reducing the quality of materials that make durable buildings.
Fill out the loan blank contained in our folder, "The A B C of the N H A". Then have us apply for your loan. You have from one to three years to pay... with 5% interest charge.
Have us get busy in your behalf.
BUILD!
William Beck & Son
Established 1905
49 Dean Street, Englewood
HEATING
TINNING
PLUMBING
ROOFING

Here Are 200 Suggestions for Home Repairs and Remodeling

(This list is recommended by the H. O. L. C.)

Study these suggestions and check your needs

"REBUILD AMERICA"

Lighting and Power

1. Wire for electricity.
2. Rewiring with modern system to reduce fire hazard.
3. Exposed wire requiring insulating.
4. Renewal of appliance cords.
5. Installation of additional convenience outlets, such as

6. Spaces between floor joists at the sills and holes around pipes requiring fire stopping.
7. Floor joists sagging or warped, requiring additional support or bridging.
8. Basement floor badly cracked or disintegrated, requiring repairing or new topping.
9. Need for partitions to provide special space.
10. Desirability of ceiling and wall coverings

Line Ceilings and Walls:
for appearance
Sound deadening
Dust-proofing
Insulation
Decorate:
Waterproof Floors and Walls
Paint Floors
Paint Walls
Paint Ceilings
Cover Floors:

Modernize and bring up-to-date by:
Replace:
Old Style Trim and Fixtures
Old mantel to useful fireplace
Old Floors with New
Add:
Wall paneling
Ceiling paneling
Beams and Coves
Bookcases and Shelves
Window Seats and Fireplace Seats

New Vestibule
Provide Coat Closet
Provide Comfort
Divide Old Closet into sections for
Hats
Wraps
Sport Equipment, etc.
Add Hall Lavatory
Hall Mirror
Hall Seat or Chest
Decorate properly

Windows
Porches

This direct mail piece reminded prospective customers of hundreds of things needed to give them better housing. Many products other than plumbing and heating were listed

$4,000 to Sales Each Month

pieces are furnished by manufacturers and imprinted with William Beck & Son's name and address. Mr. Ostler's sales are about $4,000 a month at present and he is earning a nice income on a commission basis, although he has been selling only since July, 1934.

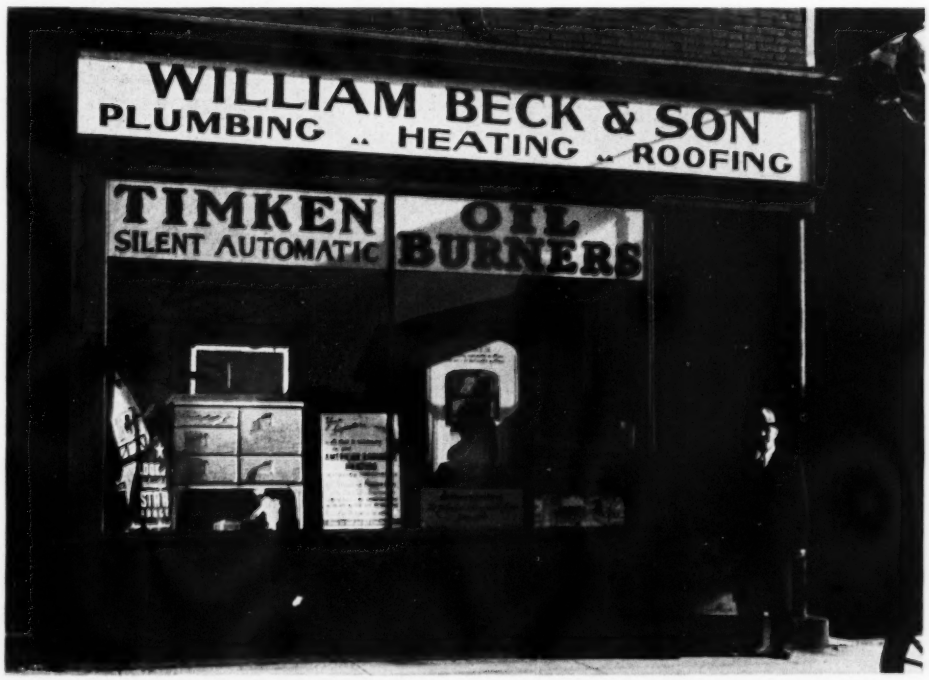
Three of the seven FHA jobs were obtained through the firm's bankers who arranged the loans. Most of the FHA jobs were either steam or hot water heating installations or alterations, but the fourteen other jobs covered the whole ground of plumbing, heating and roofing.

Total cost of the newspaper and direct mail campaign for the first ten weeks is less than $250, according to Mr. Beck Sr., who went into business thirty years ago.

Quick publicity which surprised us but is worth while

WILLIAM BECK AND SON WIN PRIZE IN CONTEST

William Beck and Son, plumbing and heating engineers of 49 North Dean street, Englewood, were notified this week that they had won a prize for their active part in the National Better Housing Campaign conducted by the magazine "Domestic Engineering."



Direct mail and personal solicitation did the trick but a good store was a fine sales background

Plumbing and Heating Sales Up

Reports from Many Cities Show Gains in Better Housing Campaign

As the better housing program ends its fifteenth week of existence, cheerful reports from many sources give evidence of the good work it is doing for business and employment. FHA reports the following results:

During the week ending November 23, 316 more lending agencies have joined the ranks of those entitled to make loans under the modernization credit plan, bringing the figure up to 11,157. 5,884 new loans have been issued, making the total 47,159. $2,416,695 in modernization credits were issued during the past week, making the amount loaned so far $20,004,545.

The New York State Director of the Federal Housing Administration says that the Better Housing Program was largely responsible for $25,000,000 worth of repair and modernization work in *New York State* during the week ending November 15.

INCREASED ACTIVITY IN BUILDING TRADES

Kansas City modernization pledges total $4,714,019.

New Orleans property owners have pledged more than $6,000,000 worth of modernization loans, and have already completed $2,055,840 worth of this work.

Since August 15, shortly after the campaign began, *Camden, N. J.*, has done $909,374 worth of property modernization and repair.

More than $5,000,000 was pledged for modernization work during the first 10 days of the *St. Louis* Better Housing Campaign.

Atlanta is another thriving city out there in front. The Chairman reports $1,496,000 in repair pledges.

The house-to-house canvass in *Grand Rapids, Mich.*, has already reached 37,276 homes, with a resulting estimated $551,604 worth of modernization work.

Incomplete returns from the *Denver* house-to-house canvass indicate that an estimated $352,850 worth of modernization will be undertaken in the portions of the city covered.

Through November 17, pledges made as a result of the canvass in *Springfield, Mass.*, totaled $183,562. In addition to this, modernization work already started or completed between the beginning of the campaign and November 17, totals $278,755.

In *Minneapolis*, at least $805,000 is being spent for modernization work, according to a conservative estimate just received. In the house-to-house canvass 8,513 calls have been made to date.

As a result of Better Housing survey in *St. Joseph, Mo.*, $572,866 worth of modernization work will be undertaken in that city.

Hot Springs, Ark., population 20,238, is spending approximately $50,000 for modernization. More than $2 a person.

The State Director for *New Jersey* reports that since August 15 an estimated $5,897,368 worth of modernization work has been created in the state as a result of the Federal Housing Program.

An estimated $1,055,743 worth of modernization and repair work has been created by the Better Housing Program in *Mississippi* since August 1, the date on which all of this activity started.

BUILDING PERMITS INCREASED IN NUMBER

Permits for repairs, alterations and improvements in *New England* showed a 60 per cent increase in amount for September, 1934, as compared with September, 1933. The 1934 figure was $1,804,972 while that for 1933 was $1,127,338.

In *San Francisco*, the department of public works reports that modernization only for the week ending November 7 reached $130,392 as against $31,813 for the previous week. In October, the figure was $1,863,525 as compared with September's figure of $425,473.

In *Buffalo*, one of the many cities in New York whose mayors have issued Better Housing Proclamations, building permits for October, 1934, amounted to $96,408, as compared with $27,218 for October, 1933.

A 90 per cent increase in building permits issued in 44 cities in *Florida* for September, 1934, as compared with September, 1933, is attributed in large measure to the Housing Program.

The State Director for *South Dakota* reports an 81 per cent increase in the number of building permits issued in *Sioux Falls* during the first 19 days of November, 1934, as compared with the same period in November, 1933, and a 200 per cent increase in the amount spent.

A 45 per cent increase in the number of building permits issued in *Atlanta* during October, 1934, as compared with October, 1933, has been reported by the State Director for Georgia.

Building permits for October, 1934, in *Ogden, Utah*, amounted to $31,171 as against $4,900 for October, 1933. The State Director for Utah reports that Ogden banks and building and loan associations are cooperating wholeheartedly with the Federal Housing Program.

In *Maine*, building permits on projects costing $2,000 and less increased 366 per cent for October, 1934, over 1933.

LABOR FEELING THE EFFECT

The State Director of the Federal Housing Administration in *New York State* reports that 1,750,900 days of labor have been created by the Better Housing Program in that state.

J. Fred Rausch, Executive Secretary of the Allied Building Trades Council of *Baltimore* states that em-

ployment among union building mechanics is 300 per cent above that of last year. He predicts "the most prosperous winter in the building trades industry for five years."

The Eastern District Director of the Federal Housing Administration reports 95,000 men put to work, 9,000 of whom have been taken off relief rolls.

The State Director for *Maryland* reports that in *Baltimore* 1,168 families went off the relief rolls during October because the heads of these families had secured jobs. The Director adds that many of these men went directly into building jobs.

The State Director for *Tennessee* reports that an estimated 9,100 men have been put to work as a result of the Better Housing Program. An estimated 3,034 men have been removed from relief rolls.

The estimated number of men put to work in *Mississippi* as a result of the program is 5,278.

Evidence of business pick-up in *San Antonio, Texas,* is furnished by the following report from the Better Housing Chairman: "Many canvassers have found jobs for themselves and turned in their credentials. Many firms have had to call their office helpers back to the office. For these reasons our canvass has been seriously slowed down."

In *Maine,* 3,150 men have been put to work and 525 removed from the relief rolls as a result of the campaign.

R. L. Metcalf, Director for *Nebraska,* reports that in *Lincoln* more than 4,000 repair jobs are listed, and that all painters and carpenters in the city are employed.

The Better Housing Chairman for *Caroline County, Md.,* reports that not a single building mechanic is left on the relief rolls in his territory.

The State Director for *Georgia* reports that in *Decatur* every worker in the building trades is now employed.

The Better Housing Campaign Chairman for *Monroe, Louisiana* reports that carpenters and painters in that city are three weeks behind in their work owing to the stimulus furnished by the campaign.

The State Director for *Arkansas* reports that all carpenters in *Russellville* are at work, and that in *Morrilton* nearly every building trades worker is employed.

A report just received from *Monte Vista, Colorado,* states that there is not an unemployed carpenter there.

BUSINESS LIKES THE IDEA

The President of the Standard Sanitary Mfg. Co. of Pittsburgh reports that his company increased its October business this year 114.6 per cent over October business of last year.

Officials of the Anheuser-Busch Brewery have signed a pledge to spend more than a million dollars for repairs and improvements.

The Federal Shipbuilding and Dry Dock Co., of Kearny, N. J., one of the large shipbuilding concerns in the country, now working on Government naval contracts, has made arrangements to aid its employees in securing modernization loans.

U. S. Announces Program to Clear Up Mortgage Evils

THE Federal Housing Administration was created by "an Act to encourage improvement in housing standards and conditions, to provide a system of mutual mortgage insurance, and for other purposes," approved June 27, 1934, which may be cited as the "National Housing Act."

The first three titles of the National Housing Act fall within the exclusive jurisdiction of the Federal Housing Administration. While divided into three titles, the functions and duties of the Federal Housing Administration logically divide themselves into two separate and distinct programs. Title I sets forth a short term program of housing renovation and modernization. Titles II and III set forth a long term program of complete home financing.

TO REVIVE BUILDING

Title I provides a program for short term financing of housing renovation and modernization. It is intended to quickly stimulate activity in the field of repair and modernization of existing properties and thus relieve present unemployment among workers in building trades and associated industries, and bring recovery to the durable goods market. The accumulation of deferred maintenance, of needed repairs and alterations and improvements upon real property, is large; but activity in this field alone can not continuously support the building industry and its workers throughout the years to come. New construction must be revived to keep pace with other forms of economic activity.

Titles II and III—the long term program—are designed to bring about this revival in the residential field. There is, however, inherent in this program no artificial stimulation for new construction activity. It is the purpose of the National Housing Act to reach deeper into the problem and to seek a solution in the fundamentals of home financing. There must be a sounder mortgage debt structure than exists today. The security and stability of real estate values and mortgage investments must be reestablished. This, Titles II and III are designed to do in the field of residential properties, by providing a system of long term financing of residential mortgages to (1) make possible the reconstruction of a large volume of the existing mortgage indebtedness, and (2) arrest the flight of old capital from, and attract new capital to, that field of investment. When these results are attained, new residential construction will start, reach its normal volume, and thereafter sustain its proper relative position in the economic system, by (1) the flow to it of a more constant supply of funds, (2) a more evenly distributed employment of labor and

consumption of materials, (3) leveling the peaks and valleys of housing production, and (4) greatly reducing, if not in fact, preventing, the residential building booms and consequent collapses of past experience.

The Administrator is authorized and directed to make such rules and regulations as may be necessary to carry out the various provisions of Titles II and III, and in making them effective, he seeks to serve the greatest number of borrowers, builders and lenders applying for benefits thereunder, in the shortest length of time consistent with careful and effective administration, and at rates prescribed for interest and for mortgage insurance premium, which will be fair alike to borrower and lender, in the different areas, of the present residential mortgage market. Those considerations necessitate certain initial limitations, restrictions and definitions of the regulations, which experience in operation, and expansion and perfection of organization will later permit, if not require, to be revised.

START MORTGAGE PROGRAM

The regulations have been announced by the Administrator. They cover methods for insuring mortgages up to 80 per cent or a limit of $16,000 on $20,000 property, at a basic maximum of 5 per cent and payable monthly within 20 years.

The long term effect of this plan is expected to be the changing over of our mortgage practices and with that, obviously, all those in the building industry will be affected either directly or indirectly.

Federal Housing Administrator James A. Moffett in announcing that applications were received for approval as mortgages and for insurance of mortgages under Title II of the National Housing Act, commented on the support and cooperation which the Federal Housing Administration may expect from the large banks, trust companies and other lending institutions of the country. The first application for approval as mortgagee was that of the Guaranty Trust Co. of New York, signed by William C. Potter, Chairman of the Board. That institution is recognized as the largest trust company in the world.

The first applicant for insurance of a mortgage was the Riggs National Bank, of Washington, D. C., of which Robert V. Fleming, first vice president of the American Bankers Association is president.

CALLS ON LABOR TO HELP

Michael J. McDonough, president of the building trades department of the American Federation of Labor has issued a call to the 1,500,000 building tradesmen of the country to get behind the home mortgage program of the Federal Housing Administration and to cooperate with that body, its regional and state organizations and community drives set up to assist it.

The call reads:

"Three months ago, the modernization and repair program of the Federal Housing Administration became effective. The results of that program in the form of employment and in making the American people Better Home conscious you are all familiar with.

"At the time it was generally recognized that vast though the needs for repair and modernization, the greatest relief from unemployment and poor housing must come through the second and third titles of the National Housing Act providing for the insuring of loans for new construction, and the freeing of billions of money so long withheld from the industry by lending institutions fearful of the safety of loans made for building purposes.

"The Federal Housing Administration has now put these sections of the law into effect. No longer need the lender fear for the safety of his capital or the borrower pay usurious and exorbitant interest."

HIGH SPOTS OF PROGRAM

The salient points of the long-range program are:

This is the first time in the history of finance that a uniform basic interest rate has been applied to private capital in the United States. Heretofore both the legal interest rates by states as well as the prevailing rates have varied.

An opportunity to owners of dwellings to refinance their mortgages on more favorable terms, and to prospective owners to obtain financing on terms comparable to the payment of rent.

Mutual insurance of mortgages on existing or new dwellings in amounts up to 80 per cent of appraised value, for as much as $16,000, for periods up to twenty years, and with the privilege of payment by regular periodic installments.

Loans on such insured mortgages to be made by lending institutions, such as banks, building and loan associations, insurance companies, and loan and trust companies, which are able to qualify as mortgagees approved by the Federal Housing Administration.

The Act authorizes variation in interest rates on insured mortgages from five per cent to six per cent. A basic maximum of five per cent other than for refunding, where five and a half per cent will apply, is fixed in the regulations.

RATES ARE LOW

Insurance premiums will vary from one-half of one per cent of the original face amount of the mortgage, on new financing, to one per cent per annum on refunding.

Regular periodic payments on principal will be required at a rate sufficient to pay off the mortgage at its maturity.

Only mortgages on dwellings designed for from one to four families will be eligible for insurance, except such mortgages as can qualify under Section 207 of the Act as low-cost housing projects.

It is provided in the National Housing Act that: "No mortgage shall be accepted for insurance . . . unless the Administrator finds that the project with respect to which the mortgage is executed is economically sound." Consequently, the dwellings on which mortgages are insured must be well located in the various urban communities.

Under Title III of the Act, provision is made for the establishment of National Mortgage Associations, each with a paid up capital stock of at least $5,000,000, privately subscribed, whose business it will be to purchase insured mortgages and issue debentures against them for sale to the public.

Plumbing Code Leaders Plan Program

43 States and 514 Zones Are Organized —1978 Field Workers on Code Compliance

THE Divisional Code Authority for the Plumbing Contracting Division of the Construction Industry met at Washington, on Nov. 20. This offered the opportunity of going over thoroughly conditions relative to the development of the code program. The meeting was attended by all of the members including Robert J. Barrett, Executive Director, Washington, D. C.; John E. Boyland, Washington, D. C.; Thomas E. Burke, Washington, D. C.; John J. Calnan, Chicago; John Coefield, Washington, D. C.; George H. Drake, Buffalo; P. W. Donoghue, Boston; M. F. Garrett, Washington, D. C.; Edward B. Kleine, Cincinnati; Alex Rotker, Brooklyn; Jere Sheehan, Jr., St. Louis; C. M. Swinnerton, Los Angeles; L. B. Tuchmann, Norfolk, Va. Ernst L. Flentje, assistant executive director and Joseph G. Hildebrand, secretary-treasurer, also attended. Various interested officers of the NRA were also present.

SIX STATES TO ORGANIZE

The agenda for the meeting provided a full opportunity to cover the progress of the work, the problems which had been disclosed in making the code program operative, and the steps which were required in securing better code observance. The record of accomplishment showed the state organizations which have been developed. State executives as well as state and zone committees have been established in Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia and Wisconsin.

State executives have also been set up in Montana, Nevada, New Hampshire, North Dakota, Utah and Wyoming.

Bid depositories have been named for the following states: Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Massachusetts, Minnesota, Missouri, New York, Ohio, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington and Wisconsin.

The plumbing code authority now has zone compliance committees in 514 zones with 32 additional committees needed for zones still to be organized. Altogether, this makes 1,978 members of the division who are in the field working for code administration.

The code authority has published complete instructions for agreements arrived at through collective bargaining under Section 1, article III of the code of fair competition for the construction industry. This points out that "In all cases where it is considered advantageous to exceed the minimum wages or decrease the maximum hours or change, in any material particular, the conditions of employment, an area agreement is advisable." These agreements permit hours of work, rates of pay and conditions of employment other than those established in the code. President Roosevelt on Oct. 17, approved a regional agreement for the trade area of Denver, the only agreement thus far approved in this industry. Sufficient progress has been made in some other localities, such as Buffalo and Gary, Ind., so that additional agreements may be approved by the President soon.

Reports showed that 13,100 official copies of the code have been distributed and 29,500 blue eagles sent to members of the industry. Labor posters numbering 40,000 have also been distributed, these being reprints of the labor provisions. Attention was called to the amendment to the code made in order to secure approval of the budget and also "to make failure to pay on the basis of contributions set forth in the budget, a violation of the code."

At the meeting, attention was given to the relation to other codified industries including manufacturers of plumbing and heating products and cast iron soil pipe; wholesalers; heating, piping and air conditioning contractors; land development and home builders; manufactured gas and retailers.

RELATIONS WITH GOVERNMENT

The various government agencies recently organized to handle the widespread program of the Roosevelt administration were also the subject of considerable discussion. These agencies are principally the Federal Emergency Relief Administration, the Home Owners' Loan Corporation, the Federal Housing Administration, the Subsistence Homesteads Corporation, and the Public Works Administration. In many cases, government contracts bring up problems of code observance not found in private contract work. The code authority has been active in seeking correction of fundamental problems which work against the objectives sought for in the code.

Suggestions regarding the amendment of the code were discussed and also the question of requests for exemption.

It was pointed out at the meeting that the NRA is sponsoring a plan of coordinating and correlating code administration. One report is that the NRA is considering the establishment of an administrative agency in each compliance area mutually supported by interested industries and trades. The opinion is that better results can be obtained by administration through authorities familiar with a particular industry.

The meeting discussed the attitude of the NRA on the subject of code compliance. It was decided that vigorous representation should be made to the NRA to assume its legal obligations in enforcing compliance.

How to Thaw Frozen Pipes with Electric Welder

Field reports tell of actual experiences last winter

THAWING pipes with an electric arc welder is not a new application but it came into real prominence during the extremely cold winter of 1933-34. So much interest has been shown in this special work that the following information has been accumulated in the hope that it will be of value to those who are called upon to thaw frozen water lines.

The main advantage of thawing frozen pipes by electricity is that it works quickly and eliminates the necessity for laborious and costly digging in frozen ground. The welding machine leads can be connected to accessible portions of the piping system in a way that will place the frozen section in circuit with the machine, in most instances requiring no digging at all. The pipe is

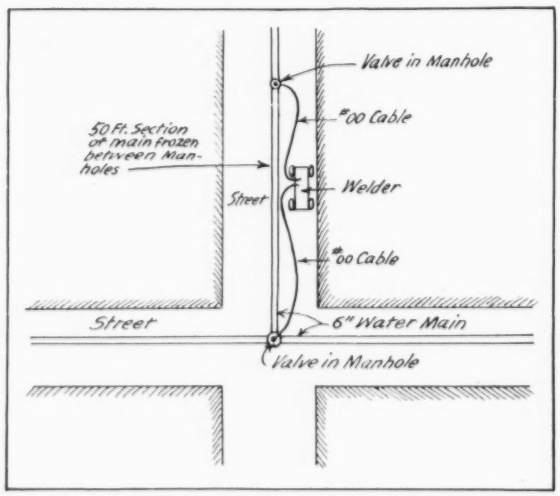


Fig. 1—This illustrates how a welding machine was connected in the field to thaw a 50 ft. section of 6 in. water main having clamped joints and lead calking. Case No. 1

warmed by its natural resistance to the current passing through it and the ice is thawed out.

Users report that the pipes do not heat excessively for more than three or four feet from the cable connections. As soon as the ice immediately adjacent to the pipe wall is melted, the water forms a better current conductor and keeps the pipe from becoming overheated. In fact, some users report that they turn off the current immediately when water begins to flow and that the water itself finishes the job.

Special care should be taken to see that all connections are tight. Rust, scale, grease, and other foreign matter should be removed from the pipe at the point of contact and the leads from the welding machine should be clamped securely in place. Ordinary "C" clamps are generally used for this purpose, although some users bind the cable to the pipe with copper wire. If connections are not tight, arcing may result in holes being burned in the pipe. Furthermore, loose connections waste energy and slow up the thawing operation.

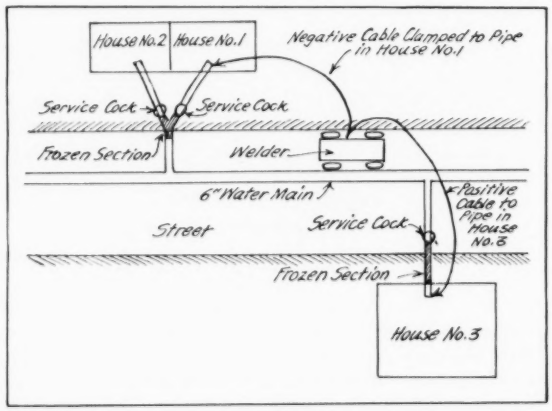


Fig. 2—The method of making connections for thawing frozen ¾ in. iron lead-in pipe is shown. The time required for the job was thirty minutes. Case No. 5

The leads carrying the current from the machine should be connected to the nearest convenient points in the piping system that will place the frozen section of pipe in the electrical circuit. For thawing out water mains usually it is possible to make connections to fireplugs, curb service cocks, and the like. For thawing house lead-in pipes, connections may be made to pipes in the cellar or kitchen and to the curb service cock. Users report that the current may even pass through the water meter without harmful effect where no more than 200 to 300 amperes are used. The local water company should be consulted in this respect, however. Many cases have been reported where two or more house systems have been thawed out simultaneously by locating the leads so as to place all systems in the circuit at once.

While some users report that they find it best to con-

nect the positive lead from the machine to the point nearest the frozen section, others have reported instances when the ice nearest the negative lead connection thawed first. It would, therefore, appear that this depends largely upon local conditions and that it does not really make much, if any, difference how the leads are located for polarity.

Users have reported emergency connections made to long pipe lines where there was no external connection available within reasonable distance, by driving rods into the ground until they contacted the pipe and then connecting the machine leads to these rods. Such connections usually are not good, however, resulting in loss of energy, and should not be resorted to except in case of emergency, although they may in many cases get far more economical results than digging in frozen ground.

CONNECTIONS AND JOINTS ARE POINTS TO CHECK

Be sure the leads are connected to the same pipe system. Sometimes, especially on farms, the customer is misinformed as to the source of supply to various outlets. When connections are made and the current turned on, if the ammeter does not register, it is evidence that either you have a poor connection (or bad joints in the line) or that the leads have been connected to different piping systems so that no circuit is established.

Before passing current through a water pipe inside a building, it is advisable to first disconnect from that pipe all radio grounds or other wires that may be connected to it. Many users report that they do not find it necessary to do this. Others say it should be done only when a radio grounded to the water pipe is turned on. Others say it is necessary only when the pipe thawing connections are made with two different houses on the same thawing circuit. At least two cases are on record, however, where radios have been damaged and the damage blamed on the pipe thawing contractor. Also, in one case, the pipe thawing contractor was blamed for a fire that started in an old building. For your own protection, therefore, we recommend the disconnection of all wires from the water pipe before passing current through it. Gas pipes, etc. should also be checked to see that they are not in contact with the water pipe. It doesn't take long to remove such hazards and the savings accomplished by this method of pipe thawing are so great that the customer will not object to the slight extra time required to take such safety precautions.

Use cables of ample size. If the leads from the machine overheat, it is a sign that they are not large enough for the amount of current or for the length of the circuit. This means energy wasted heating up the leads

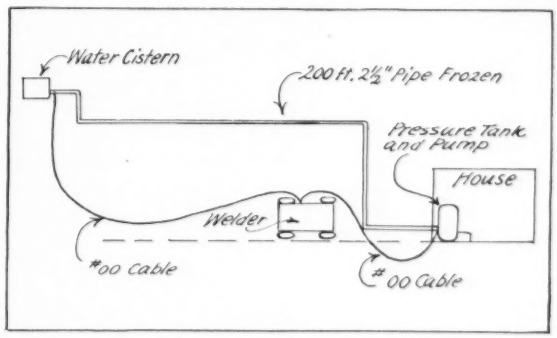


Fig. 4—This job was done at night with the temperature about 25 deg. Fahr. below zero. The time required for thawing was approximately 3½ hours. Case No. 3

when it should be concentrated in warming the pipe. Overheating also shortens the life of the cable, so that real economy is effected by paying a little more for larger cable. The smallest cable reported used in this work is No. 0. In many cases, however, it is likely that better results might have been obtained with No. 000 than with No. 0 or No. 00. Most users of wide experience in this work seem to favor No. 000, although the reported cases we are permitted to publish herewith involve No. 00 largely.

The higher the current that can be safely used in the circuit the quicker the job can be finished. Care should

(Continued on Page 132)

Fig. 3—Five hundred feet of 4 in. cast iron water main with lead calked bell joints was thawed with this set up. Case No. 2

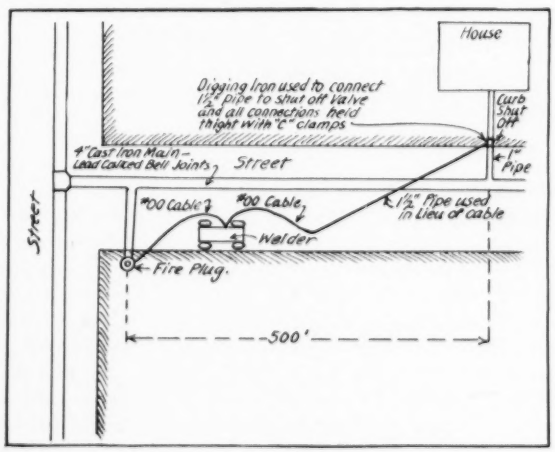
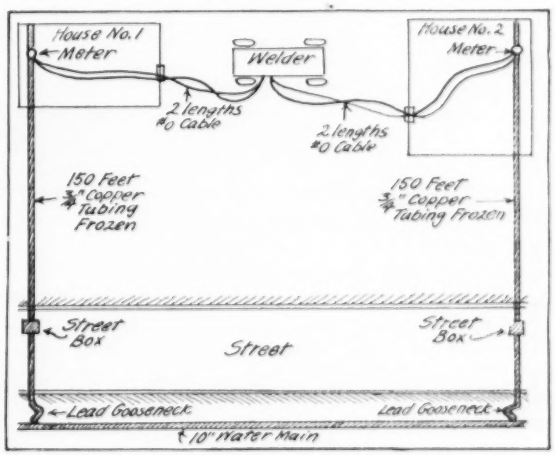
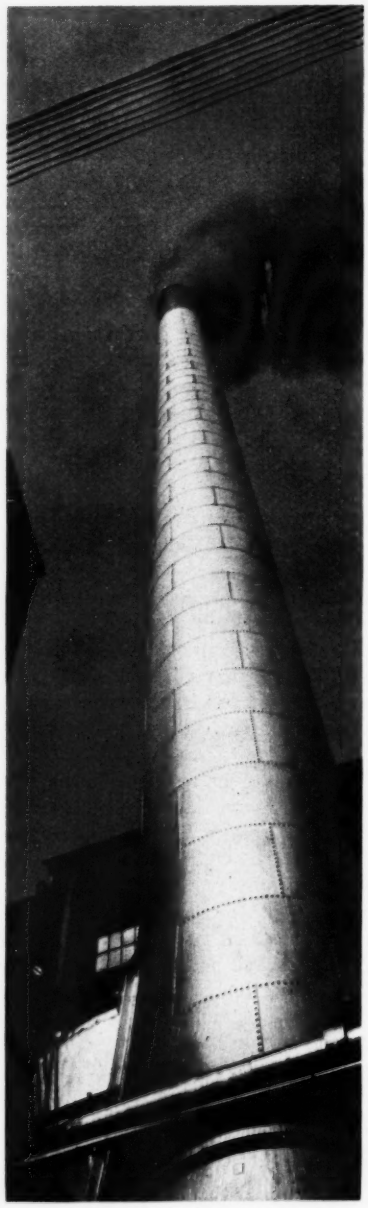


Fig. 5—Here, two 150 ft lengths of ¾ in. copper tubing were frozen. The connections for thawing them shown. Case No. 4



Two Chimneys *for* One

By H. T. Long



Exercise the same relative care on your small heating jobs, in regard to the chimney, that you would on a job the size of the one indicated here and your troubles will be reduced to a minimum

WILL two chimneys, side by side, do the same work as one which has the same cross section area. This is a question which often occurs in remodeling work and just recently, it was presented to us by a reader in Washington, D. C. who actually was faced with the problem. Here is what he asked:

"We are figuring a job with a cast iron section boiler in which the catalog calls for a chimney 12 in., by 12 in., by 35 ft., high. In this particular installation, however, the chimney has two 8 in., by 12 in., by 35 ft., flues in conjunction, making a greater area when combined than the 12 in., by 12 in., called for in the catalog.

"Will it be possible to connect our boiler to the two 8 in., by 12 in., flues and get the same results as if we had connected to a 12 in., by 12 in., flue as called for? This problem has never, as far as we know, been met with by any of our associate heating men."

The way to analyze this problem and the answer are worked out in the following: Our answer is "yes" with some reservations. The difficulty which has developed with chimneys when connected in the manner described—that is, by utilizing the two adjacent flues when one is not large enough—is that a current of cold air is drawn down one flue while the current of hot air is passing up the other and this cold air crosses over at the bottom and is drawn up the hot air flue by the draught action of the heated gases. This accomplishes two results, it cools the heated gases so that the draft effect is much impaired and at the same time it eliminates drawing air through the fire to any extent owing to it being easier for the cold air to drop down the cold side of the chimney than it is for it to find its way up through the fire and around the boiler flues into the chimney. This action is illustrated in Fig. 1.

To get away from this trouble it is necessary to cut out the division between the two flues for a distance down from the top of the chimney about four to five feet; also it is desirable to perform the same operation on the division at the bottom of the chimney so that the division between the two flues will simply constitute a partition beginning four or five feet above the smoke inlet at the bottom and terminating four or five feet be-

low the top as shown in Fig. 2. The results after this is done approximate those of a single chimney with the combined areas of both flues which have been joined. Notice that we say practically!

Actually there has been an added amount of surface introduced on which the chimney gases rub as they travel up the flues and we are very glad that the combined areas of your two flues are slightly in excess of the area required for a single flue as this gives a somewhat reduced velocity and helps to make up for the added rubbing surface. Let us see what this looks like in figures. In the first place the single flue required by the catalog has an area of

12x12 or 144 sq. in.

while the two flues you intend to use have an area of

(8x12)x2 or 192 sq. in.

Therefore the velocity in the second flue is only

144/192 or 0.75 which is 75 per cent as much.

On the other hand the perimeter or measure around the single 12 in., flue is

12x4 or 48 lin. in.,

while the combined perimeters of the two flues amounts to

(12 plus 8) x 2 x 2 or 80 lin. in.

Therefore the rubbing surface is increased

(80-48)/48 or 0.67 which is 67 per cent.

Now the friction is a resultant of the amount of surface and the velocity of the gases all other things being equal but the friction varies with the *amount* of the rubbing surface and with the *square* of the velocity. So, if we had the same velocity in both cases the added rubbing surface in the two flues would increase the friction 67 per cent. But with a velocity of only 75 per cent in the case of the two flues the friction is reduced, owing to the lower velocity, to the amount shown in the following:

It may be argued that it is just as important, from the standpoint of efficiency and good results in operation of residence heating equipment, to design correctly the chimney for a small plant as it is to design correctly one the size shown in the illustration on the opposite page

0.75x0.75 or 0.5625 as much as it was with the original velocity.

Then the original friction plus the friction added by the added rubbing surface and reduced by the slowing of the velocity gives

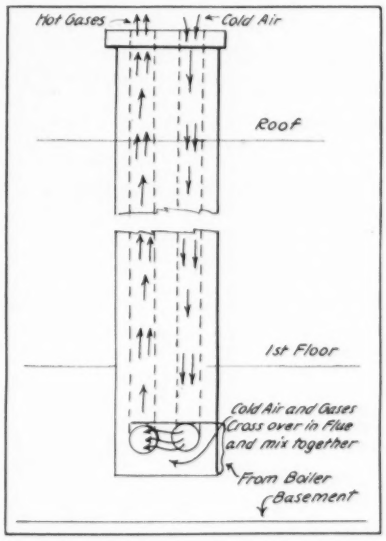


Fig. 1—This diagram indicates how cold air might nullify the action of one flue if most of the dividing wall is not removed

(100 per cent plus 67 per cent) x 0.56 or 1.67 x 0.56 or 0.94 which is 94 per cent.

From this it would appear that you actually would be a trifle better off with the use of the two flues than you would be with the single flue as called for in the catalog.

A chimney which has no offsets can be tightened up even if there is not space for a man to get down inside of the flue. This sometimes is done by pointing up the outside where the leaks have shown; in other instances the chimney may already have been furred in so that access cannot be obtained to the outside surface. Then a block is formed in the shape of the flue and as large as can be run up and down the flue without wedging. This block is attached to a rope and is let down in the chimney from the top until it reaches the bottom. Cement grout is poured in on top of the block which is worked up and down gradually rising as the cement flows into the inequalities of the brick and joints until it reaches the top (see Fig. 3.) If this is done intelligently an excellent air-tight, cement lined, flue results.

Even with chimneys of proper design, height and area, it is possible to be so careless in the construction as to prevent the proper functioning of the chimney later when the boiler is started. A sample of some of the items which may cause poor chimney action is given in Fig. 4 where the chimney has the following objectionable features:

(a) It is terminated below the ridge of the roof allowing the wind sweeping across the roof to fall down over the ridge onto the top of the chimney which—in

times of high winds from certain directions—will be liable to produce a reverse draft in the chimney.

(b) A piece of timber has been dropped into the top of the chimney either during construction or at the

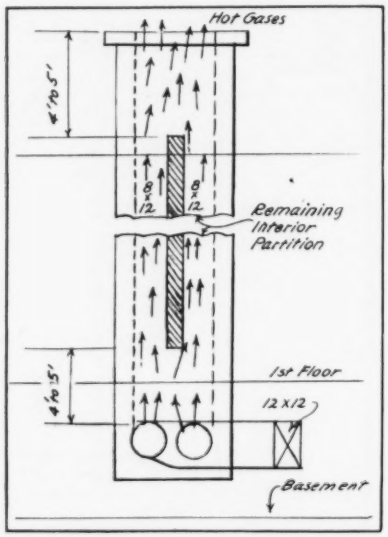


Fig. 2—Here is the approximate action within the chimney after the upper and lower parts of the wall are knocked out

time of removing the scaffolding and has not been removed thus partially blocking the flue.

(c) There is a crack in the chimney at the roof line which not only admits air and tends to spoil the draft

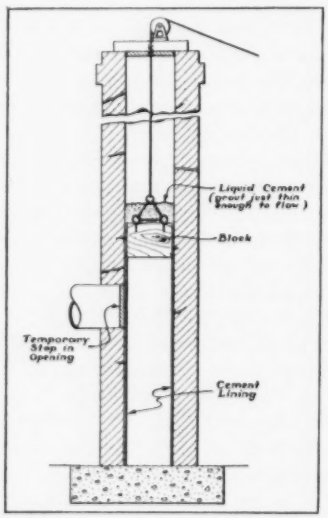


Fig. 3—The diagram shows a method of grouting the cracks in a leaky chimney

but also is a real fire hazard due to the danger of sparks escaping and setting fire to the roof.

(d) Mortar has been dropped into the chimney in generous amounts and, striking the offset, has collected in sufficient quantity to seriously reduce the chimney area.

(e) There are some bricks whose joints are not solidly filled with mortar at a point just above the attic floor, through which openings, more air is leaking into the chimney and which constitute a fire hazard the same as the crack previously mentioned.

(f) A fireplace on the second floor has its flue connected into the chimney so that an almost unlimited amount of air can enter the chimney at this point and this reduces the effective height of the chimney to about the height at which the fire place flue is connected.

(g) At the second floor the wooden floor joists have been built into the chimney construction which not only constitute a serious fire hazard but also are liable to shrink or warp and open the chimney joints where this occurs.

(h) It will be seen that the flue lining of the chimney only has been carried up to a point about midway

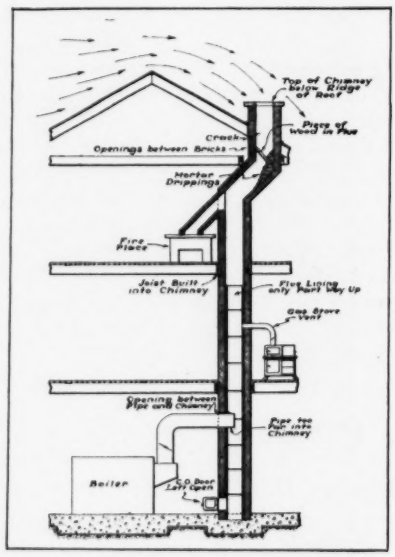


Fig. 4—This sketch shows a large number of defects which are likely to be found in ordinary chimneys for residence installations

between the first and second floor which is wrong as all chimneys should be provided with flue lining for the full height where a well constructed chimney is desired.

(i) At the first floor a gas stove vent is connected into the chimney. This never should be done for two good reasons; first, because gas may escape from the stove, pass up into the chimney and explode and, second, because this connection will allow air to enter the chimney from the gas stove and will reduce the chimney draft just as the fireplace did above.

All of these points must be checked over in determining whether a chimney is properly constructed or whether it is defective. It is very important to see in any chimney that there is no place where air can leak into the flue from any source whastoever because any air so leaking in will not pass through the boiler and is equivalent to reducing the chimney area.

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QUESTIONS AND ANSWERS!

1—

To the Editor:

I am sending you a drawing, Fig. 1, of a deep well pump, 200-gal pressure tank, water softener, hot water boiler, a 30-gal range boiler and a heater. This system is connected the same as the diagram I am mailing you. I mailed this to another source of information and they suggested the changes shown in Fig. 2 but this has done no good.

The trouble with this is that every time you open the

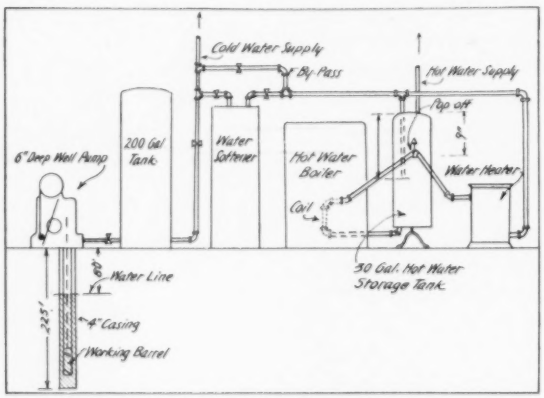

Fig. 1

hot water faucet there is a blubber of air that comes out strong enough to knock a glass out of your hand and continues this as long as the hot water faucet is open, either in the sink or lavatory or bath tub. The water never boils at any time. It is not too hot to wash in without cold water. If this water was boiling, which would make steam, I could understand why we have this condition, but at no time does the water get over 180 deg. Fahr.

Indianapolis, Indiana. T. E. E.

To the Reader:

Before we consider what may be wrong with your system, it would be best to point out that there may be some features which are not shown on your drawing or referred to in your letter which might influence our suggestions.

In the first place, let us consider what happens when

1. *There are two parts to this question. First, the reader wants to know why his water supply system delivers air under pressure when a faucet is opened. The second part of the problem centers around the water heating connections. Two engineers offer suggestions as to the possible causes of the difficulties.*

2. *Sanitary engineering is a branch of civil engineering, for the information of one particular reader and all others who have wondered about this.*

3. *A weakness of one-pipe heating systems is encountered in this question and answer. Several suggestions for overcoming this are suggested.*

water is pumped. You have a system which places the water under pressure so that it is forced through the piping and to the faucets. Water has the ability of absorbing air just like gingerale has the ability of ab-

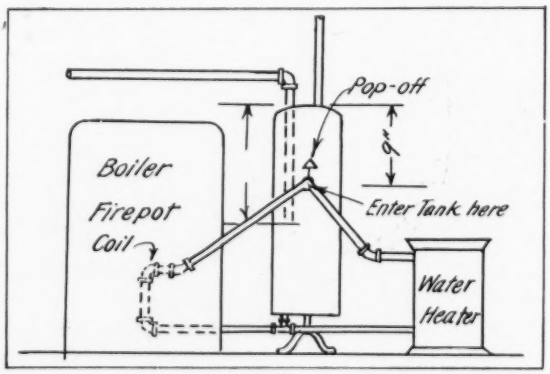

Fig. 2

sorbing carbonic gas. When water is under pressure, it is capable of holding in it more air than when it is exposed to the atmosphere. In pumping the water in the installations to which you refer, and in placing the water under pressure, there is no question but what a very

considerable amount of air is caused to be absorbed by it. We have seen cases where water drawn into a glass is even milky in appearance as a result of the large amount of air, contained in the water, being released in the form of little bubbles. Of course, this milky appearance only lasts for a few seconds until the excess air rises to the top surface and escapes to the atmosphere.

However, it should be pointed out that even water exposed to the atmosphere is under an absolute pressure of 14.7 lb. per sq. in. which, in itself, causes air to be held in the water.

Now, consider what happens when water is heated. The air in the water is driven off and in the case of a closed container, it collects at the top of the system. There is little question but what this is the cause of your difficulties. In other words, a large amount of air is mixed with the water which is pumped and when this is heated, the air is driven off and forms at the top of

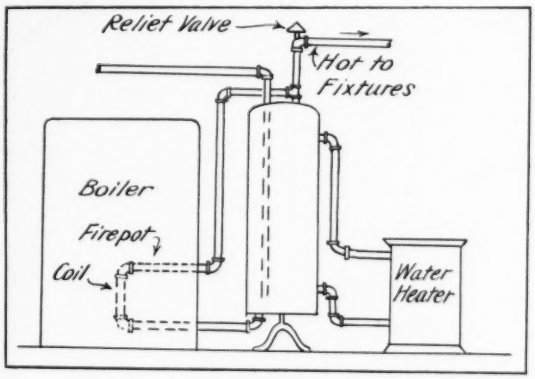

Fig. 3

the piping system. The obvious result is that when the faucet is opened, the air must escape before any water can be drawn.

You do not show in your drawing just how your faucets are arranged. We do not know if you have a two story and basement house with the bathroom and lavatory faucets on the second floor or if all of your faucets are on the same level. If this is a two story house, it would seem that you are more likely to have this difficulty at the second floor outlets rather than at the first floor kitchen sink outlet. This is because the air rises to the top of the system.

As for a solution, one suggestion we have to offer is that you run your hot water supply pipe to a tank in the attic which will serve as an air collecting tank. In this way, it will be possible for you to collect the air above the faucets which are causing the trouble. Obviously, this air can be drawn off at intervals either by the use of a small air valve, or by the use of an automatic air vent. There is one thing that should not be lost sight of and that is the air in this attic collecting tank will have the same action as the air in a pneumatic pressure tank. That is, it will be under pressure and when the pressure is released in the system as a result of opening a faucet, the air will expand. If this air expands to such an extent that it fills the system down to the faucet, obviously the air will escape through the faucet just as it does now. However, having a sufficiently large air collecting tank in the attic should overcome this.

You imply that this difficulty is encountered only in connection with your hot water services. This substantiates our opinion that the cause and solution are essentially as outlined here.

The way in which you have connected your range boiler to your hot water coil and water heater explains why you do not get hot water. If you connect the water heater to the side opening in the range boiler, you should connect the coil to the hot water supply rising out of the tank.

In other words, these two should not be connected together. In addition, it is wrong for you to connect the bottom of the water heater to the cold water supply. Instead, it should be connected to the bottom of the range boiler just as you have connected the bottom of the hot water coil. In addition, blow-off arrangements should be provided for cleaning sediment out of the bottom of the storage tank and the adjacent piping.

A SECOND ENGINEER'S COMMENTS

The inquiry from T. E. E., Indianapolis, Ind., has been looked over and the reply for same checked. Everything seems in order except the correspondent's statement that the air continues to flow as long as the faucet is open. Where is such a quantity of air coming from? Certainly this is much more than entrained air in the water if his statement is not exaggerated.

We have been wondering if there is not a possibility that the deep well pump lowers the water in the well sufficiently so that it is pumping a portion of air at times and if this air is not delivered into the pneumatic tank and occasionally from the pneumatic tank over into the hot water tank.

This is the only way that we can think of in which such a quantity of air could get into the system although there is nothing in the sketch to indicate such a condition beyond the quantity of air which the correspondent seems to find.

2—

To the Editor:

Are there any colleges that give a degree known as "Sanitary Engineer" or does this teaching come under another classification such as Civil Engineering?

New Jersey. G. M. F.

To the Reader:

Sanitary engineering is a branch of civil engineering. In other words, civil engineering is the profession which includes sanitary engineering as well as other specialized forms of engineering work such as bridge design and construction, railroad construction, etc. College courses are developed so that four years of study in civil engineering will lead to a degree of bachelor of science in civil engineering. If the student wishes to continue, he can obtain either a degree of master of science in civil engineering or a straight civil engineering degree. If a degree of sanitary engineering should be given by some college or university, it would be conferred only if the student had received the degree of bachelor of science, under normal procedure.

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We are deeply grateful for this overwhelming expression of appreciation, but we are especially proud of the fact that the Master Plumbers of America stand so solidly for the principles which have long made our industry outstanding in service to the buyer. "Standard" staunchly insists that the services, training and experience of the Master Plumber are essential to the public in order to receive full value and service from "Standard" Plumbing Fixtures. And it is true today, more than ever, that "The Plumber Protects the Health of the Nation."

Our industry has felt the economic pressure of the last few years severely. Many of our good friends have been faced with seemingly insurmountable obstacles. But now we face a new opportunity. The National Housing Act has already opened new channels of service by providing financing plans for home modernization. Soon we will feel the effect of this Act in new home construction. So the courage and fortitude shown by the Master Plumbers has not been in vain. You have set an example which has made us proud that we are engaged in an industry which has met this test so magnificently.

For the encouragement you have given us . . . for the sincere expressions of appreciation which have come to us -- we thank you sincerely.

Henry M. Reed.

PRESIDENT

Standard Sanitary Mfg.Co.

3—

To the Editor:

I have a job to rectify in a three-family house where there are three separate boilers each supplying about 225 sq. ft. of radiation, and at least four out of six radiators on each floor get cold only a short time after the fire is checked. The piping is large enough, is properly pitched and each radiator has a syphon air valve; there also is a quick vent valve on the return near the boiler. The job works quietly and outside of the quick cooling off seems O. K.

Could you suggest any solution of the trouble? At present I am considering the use of checked air valves and a general tightening up of the system so that a kind of vacuum will be held in same to keep the radiators warm. At the present time after 2 lb. steam pressure has been on for some time and then the fire is checked it takes about an hour for the farthest radiators to cool off in spite of the fact that the piping is all covered.

Mass. M. S. P.

To the Reader:

The cooling off of the radiators of which you complain is a weakness of all one-pipe gravity steam heating systems as is evidenced by the three systems you mention. This is caused by the fact that the air valves are thermostatic and, as soon as the pressure goes off the steam in the radiator, these valves begin to cool and soon open up the air port so that air rushes into the radiator to replace the steam which is condensing and in a very short time the radiator is cold. You say it takes one hour after the drafts are checked before the last radiator begins to grow cold; we can show you a lot of one-pipe jobs where it does not take half of that!

There are several ways of mitigating this evil one of the simplest and cheapest being the installation of checked air valves as you suggest which prevent air reentering the system via the radiator valves and the building up of a partial vacuum within the system which will keep the water boiling in the boiler and producing steam or vapor for a considerable period after the drafts are checked. In this case it is necessary that all air valves be made of the checked type including the ones on the return mains and that the packings around the gauge glasses be tightened so no leakage takes place there. We do not believe that you will have to tighten any of the piping as black iron steam systems soon rust up any small leaks and your system now probably is tighter than it would be if you went around and disturbed the joints.

Another item is in the method of operation, such as keeping a small pressure on all of the time instead of 2 lb., and then nothing: in mild weather if the weight is taken off of the regulator altogether, it may be found that sufficient vapor will be generated to keep most of the radiators warm and this will avoid the on-and-off condition that is the real cause of the trouble. Another method is to use a thermostat in the last radiator room so that as soon as this room begins to grow cool, the drafts on the boiler will be opened. Another method is to put a control directly on the last radiator so that when the radiator starts to cool off it will open the draughts immediately, and when the radiator becomes heated the thermostat will close the draughts. All of these are for ordinary one-pipe steam systems without checked air valves but may be applied to systems with checked air valves too, if so desired.

Questions for Readers to Answer

The following question was asked in the October issue and the following answer is by a reader:

It is more desirable to connect a house sewer to a street sewer near the top of the street sewer or near the bottom of the street sewer and why?

The house sewer should enter the street sewer as near the top as conveniently can be arranged and not below the middle of the street sewer if it possibly can be avoided. Some municipalities have this feature incorporated in their plumbing codes and others insist on it when installing the laterals for house connections.

The chief reason for this is to prevent the likelihood of the house connection getting stopped up (during periods when no water is flowing in the house branch) by the sewage in the street sewer backing up in the house sewer and settling there; in fact the house sewer is best located when it is entirely above the top of the street sewer and turns down into the street sewer at a comparatively sharp angle so that any collection deposited in the branch line will offer the minimum amount of resistance to being removed when the flow of water from the house is set up.

In cases when the levels necessitate that the branch sewer come in below the top (but not below the center line of the street sewer) the theory is that when the street sewer is flowing at a level high enough to flood the house sewer, the water is mostly rain water and street water so that there will be little tendency to deposit solids in the branch line. While this probably is true to a certain extent it also is true that the higher up the branch sewer is located in relation to the street sewer the less will be the likelihood of any trouble developing.

How Would You Answer This Question?

A hot water radiator heats a room on a zero day to 60 deg. Fahr. The water in this case leaves the boiler at 180 deg. Fahr. and returns at 160 deg. Fahr. How much must the water temperature be increased to bring the room up to 70 deg. Fahr. all other conditions remaining the same?

Answers based upon your experience, suitable, will be paid for and published in the February issue.

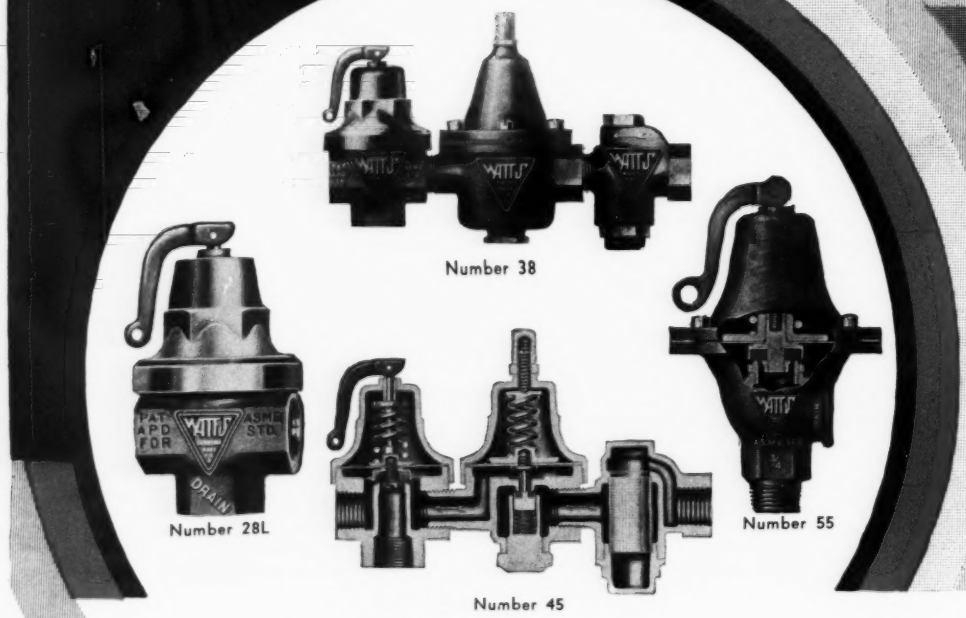
Automatic Heat *and* Air Conditioning

In this Section..... Lionel Jacobs tells Installers, "The Underwriter's oil installation rules provide that measure of safety to which any reputable burner concern, with the public interests at heart, must subcribe."

Sell Comfort — and Automatic Heat and Air Conditioning Sales will take care of themselves

ANOTHER WATTS TRIUMPH!

First with the Safety Test Lever



In keeping with our policy to continually improve Watts products so they will efficiently, economically and safely meet every condition, more than two years ago Watts *introduced a safety test lever* as standard equipment on all Watts Hot Water Heating Regulators and Relief Valves for water heating boilers.

And now insurance inspectors and engineers everywhere are demanding this important feature, for they realize that in no other way is it possible to periodically test such valves and flush off the disc and seat. The safety test lever adds assurance of reliable and safe operation of Watts Relief Valves.

The sturdy strength, long life and reliable and capable performance of Watts Diaphragm Relief Valves and Regulators at all times and under all conditions reflect the care and enduring quality that have been built into them.

For sixty years the name "Watts" has stood for guaranteed satisfaction. You will have no complaints or recalls if you install the Watts.

Why not find out about these unusual Watts products? Write for our new catalog and price list, or mail the coupon.

JOHN G. KELLY, INC., Distributors
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News of Code Activities of Heating Contractors

Executive Director of the Divisional Code Authority is Joseph C. Fitts — Code Hearing is Held

JOSEPH C. FITTS, secretary of the Heating, Piping and Air Conditioning Contractors National Association, has been appointed executive director of the Divisional Code Authority for the Heating, Piping and Air Conditioning Contracting Industry. Mr. Fitts has been granted a leave of absence by the board of directors of the National Association so that he can devote all his time to code authority work. S. Lewis Land, educational director, has been appointed acting secretary during Mr. Fitts' absence.

Joseph C. Fitts, newly appointed executive director

Hold Public Hearing on Heating, Piping and Air Conditioning Contractors' Code

The National Recovery Administration held a public hearing in the Auditorium of the Department of Commerce at Washington, D. C., on November 8, for the purpose of reviewing the definition of the divisional chapter for the Heating, Piping and Air Conditioning Contracting Industry (Chapter 16) and to review the provisions for selling below costs as required by the order approving the Code, dated July 25th, last. Many manufacturing interests protested against being governed in the installation of heating, ventilating, refrigerating and air conditioning equipment by the wage and hour provisions of this Chapter. It was brought out that some of these industries had been granted an automatic stay of this Chapter's application which had been requested within the 10-day period following approval of the Chapter.

Representatives of the Division of the industry urged the termination of such exemptions, and the continuation of the present definition under which manufacturers are required to conform to the same working rules when competing with contracting firms on the installation of mechanical equipment in construction operations. The Construction Code Authority was represented at the hearing by Stephen F. Voorhees, chairman.

Attention was directed particularly to the fact that the manufacturers' objections are an effort to evade the field of construction industry rather than the construction industry attempting to invade the field of the manufacturing codes which specify labor conditions and rules of fair competition for manufacturing processes and not construction activities at the site.

The meeting was presided over by Deputy Administrator Robert N. Campbell.

Those who appeared against it were: Gilbert H. Montague, Baldwin Locomotive Works and its subsidiary and affiliated companies; John W. O'Leary, Machinery and Allied Products Industry; G. W. Alcock, Locomotive Manufacturers, sub-division, Machinery and Allied Products Industry; Arthur W. Clark, National Oil Burner Dealers Association; Stuart Bruce McNaught; Randall J. Le Beouf, Manufactured Gas Industry; Haldeman Finnie, National Electrical Manufacturers Association; L. B. Leut, Code Authority, Scientific Apparatus Industry; Eskell Nordell, Permutit Co., New York City, John J. Beatty, Stoker Mfg. Industry; F. B. Ruehl, N. J. State Association of Master Plumbers, B. Badger, E. B. Badger & Sons Co., Boston, Mass.

Those who spoke for the termination of exemptions were:

Robert D. Williams, past president, H. P. & A. C. Contractors National Association, and chairman of Code Authority.

J. Lawrence DeNeille, president, H. P. & A. C. C. N. A., and vice president of Code Authority.

John H. Zink, vice president, H. P. & A. C. C. N. A., and treasurer, Code Authority.

Thos. O'Callaghan, director, H. P. & A. C. C. N. A., and member, Code Authority.

Morris J. Chagnard, treasurer, H. P. & A. C. C. N. A., and member, Code Authority.

Stephen F. Voorhees, chairman, Construction Code Authority.

Walter H. Oleson, secretary of Administration Agency, Boston Area of H. P. & A. C., Code Authority.

Frank G. Tusa, certified public accountant, who submitted overhead survey and talked on costs.

Michael F. Garnett, United Association of Journeymen, Plumbers and Steamfitters.

Both sides were given 10 days to file briefs and appear for further hearing.

Sales "Own

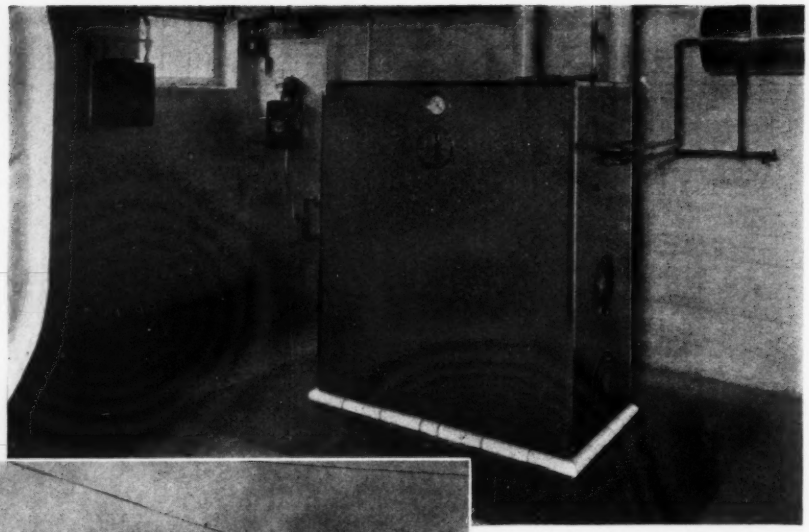


Fig. 1—At the right is a view of the basement of the model home showing the oil burner and boiler combination unit installed

Fig. 2—Below is the exterior of the home. Its exposed position, the cold floor of the room over the porch and various other factors had to be considered in designing the automatic heating system for the job

Fig. 3—Concealed radiation was installed, one example of it being evident in the living room seen at the left, under the window

Fig. 4—On the next page is a view of Mr. Kleinhans' booth exhibited at recent show

FOR the past ten years home building and home owning has been sponsored by the Elizabeth (N. J.), Chamber of Commerce in the shape of an annual "Own Your Home Show" which usually is held in the spring but which this year was held in the fall from Oct. 29th to Nov. 3rd. Differing from many such projects the Elizabeth exhibition includes the building each year of a model house which is designed by an architect, and built by local contractors.

The actual value of the house is placed at around

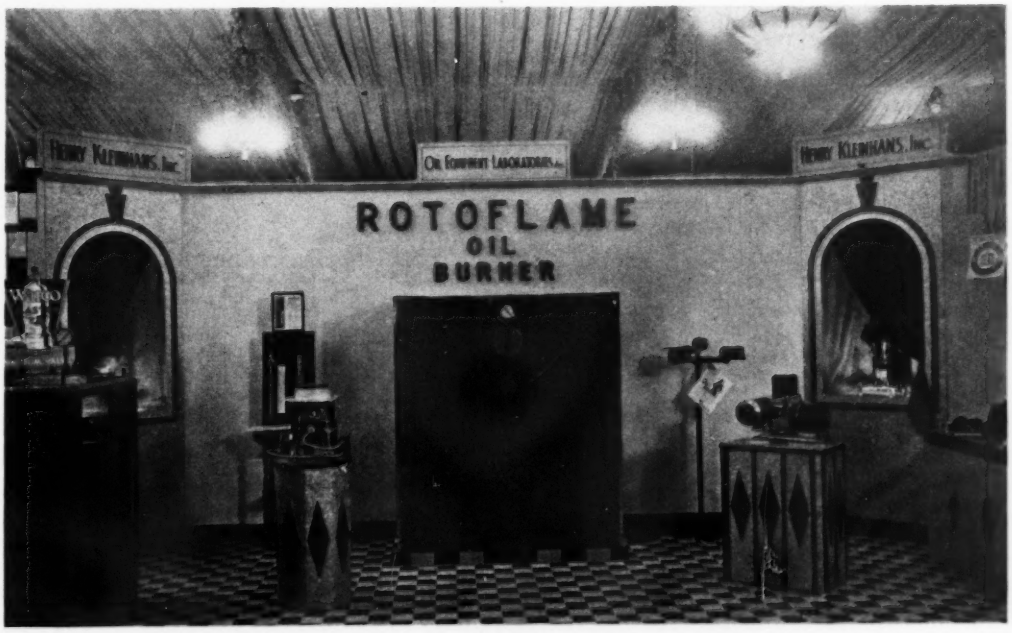
$14,000 but it is built for a cost of $7,000 to $8,000 due to the contributions of material and reductions in price made for this particular project by the local manufacturers and contractors. The total attendance at the show this year ran over 100,000 admissions and included people from 400 towns and 25 states. The show is self-supporting and the profits are sufficient to pay all charges including the cost of the house there being no promotion cost as all matters are handled by the Chamber of Commerce without outside help or expense.

The intent, of course, is to arouse interest in home building, home owning and home modernizing among the visitors and for this purpose the model house is completed and opened for inspection six weeks before the show is held. The house this year was designed by J. H. M. Dudley, architect and Joseph Andersen, associate architect, while the automatic heating was installed by Henry Kleinhans, Inc., of Elizabeth, plumbing and heating contractors. As this house is supposed to represent the last word in suitability and convenience combined with a moderate first cost, it is interesting to see what was selected to fill this need in the heating portion of the work. A view of the exterior is presented in Fig. 2, where it will be seen that it is story-and-a-half high, with one of the upper bedrooms carried out over the porch at one end. It contains seven rooms consisting of the kitchen, breakfast room, dining room and living room on the ground floor while on the second floor are located three bedrooms and a bath. A view of the living room is shown in Fig. 3.

Henry Kleinhans, Inc., tell us that they secured the contract to install the heating work in this representative building due in part to their having lent considerable time and effort to aid this public spirited movement. Incidentally, they used their best efforts to produce an installation suited to this type of work; one which would be economical to operate and which would give satisfaction to the owner. For this purpose a one-pipe steam system was installed, thermostatically controlled, and with checked air valves on the radiators so that the

Efforts Place Oil Burners in Your Own Home" Exhibits

Complete cooperation with local movement to encourage home owning and remodeling was found to be good business here



system may be run under partial vacuums at times when the weather is mild and low steam pressures are desirable. The vacuum under which operation usually is maintained is around 15 in., and vacuums as high as 23.4 in., have been produced.

Heat is generated by an oil fired boiler. So far this year the weekly cost for oil to supply heating and hot water has not exceeded $1.25 per week, the burner using No. 2 fuel oil at 7 cents per gallon. A view of the boiler and burner as installed in the house is shown in Fig. 1. The boiler is rated at 750 sq. ft., e.d.r., and has a coil permitting a supply of domestic hot water both winter and summer.

OVER 100 OIL BURNERS INSTALLED

For radiation, cast iron concealed radiation is used, this being set under window sills and housed over with grilles for the circulation of the air. A view of the concealed radiator in the living room is shown in Fig. 3. The net amount of radiation installed comes to 420 sq. ft. net, showing an ample capacity on the part of the boiler to carry the load without difficulty and with a high heat efficiency.

The contractor for this work makes a specialty of installing oil burners and has supplied and installed over 100 during the past year or an average of over eight every month. The success of the firm is attributed to two principles which always are adhered to, these consisting of "first class work" and "always make a job right." When asked how new work is secured, the answer was "through personal contacts and reputation established on previous installations." This firm is not a believer in general newspaper advertising except for seasonal items such as oil burners in the fall when everyone is thinking about heat for the coming winter. They make it a point, however, to send out several hundred invitations to attend the show where their material was on exhibit and every month mail a pamphlet to about 250 past customers and future prospects.

This pamphlet has 12 pages with a cover printed in color and is published co-operatively by 10 firms interested in the building trade. Besides the name of Henry Kleinhans, Inc., there are an electrical company, a humidifier company, a tile setting company, a hardware company, a painter and decorator, a building supply company and a real estate and insurance company. The inside of the rear cover sheet is reserved for the business cards of these various organizations which is all of the

(Continued on Page 105)

Insulation Important in A. C.

Estimate that not 5 per cent of Homes are Weather-proof

BEFORE considering the installation of air conditioning equipment, according to a recent news release, the dealer should first of all study the insulation of the building to determine its efficiency.

"In most cases," the statement went on to say, "the owner of a home will be surprised to find how poorly insulated his house is. It is hardly exaggerating to say that not 5 per cent of the homes in this country are weather-proof.

"Without even bothering to consider the handicap such lack of insulation places in the way of future air-conditioning, think what this means at present. In cold weather the average house is nothing more or less than a big radiator leaking valuable heat. Considering the condition of most houses, the only reason the average American family is comfortable at all during the cold weather is because of the wonderful efficiency of modern heating equipment, functioning marvelously in spite of terrific handicaps.

"Probably the best proof of this can be made by the home owner himself. On a very warm day or a cold day let him make a visit to his attic taking with him a thermometer. He will probably be surprised at the difference in temperature between the attic and the floor below. The reason, of course, is that most attics are not insulated at all, while lower floors are insulated to some extent.

"In the summer the sun beats down on the shingles and they transmit heat directly through building paper and roof boards into the attic, with no air space, such as exists on sidewalls between sheathing and plaster base, to retard its progress. In most attics the only ventilation comes from small windows at each end, which are closed 90 per cent of the time. Therefore the attic becomes a store room of stagnant air which heats the unfinished flooring and continually warms the air coming in contact with the ceilings of the rooms below.

LOSSES THROUGH THE ATTIC

"During the winter months, the attic loses heat meant for the living quarters. Unwarmed itself, in reality open to the cold outside—even though not a flake of snow or drop of water can get through the roof—the average attic becomes a refrigerator which either chills the rest of the house or demands additional fuel consumption to counteract its effects.

"When we are consulted about home insulation, we generally recommend that the attic be worked on first since it is usually the worst offender. And, the cost of insulating the average attic is so small that the fuel saved in a few months in many cases, more than pays for the insulation."

Oil Burner Rules are Guide to Better Installations

"These regulations are reasonable and provide that measure of safety that any reputable oil burner concern, with the interests of the industry and the public at heart must subscribe to."
—Lionel L. Jacobs.

Regulations of the National Board of Fire Underwriters

OIL burner contractor-dealers will find in the following regulations broad specifications which they can apply in making better installations.

1. Application and Scope. (a) These regulations apply to oil-burning equipments for installation in furnaces and boilers used for heating dwellings and for various commercial and industrial applications.

NOTE. For the installation of oil burners in stoves and ranges originally designed for solid fuels see separately published regulations.

(b) These regulations are intended to prescribe reasonable provisions for the installation of oil burning equipments, based on minimum requirements for safety to life and property from fire. They cover the installation of the oil burners and all equipment connected thereto, including tanks, piping, pumps, control devices and all accessories. Careful attention to the maintenance and proper operation of the equipment is necessary for the continued safety of oil burning equipments.

(c) Where the circumstances or conditions of any particular installation are unusual and such as to render the strict application of these regulations impracticable, the inspection department having jurisdiction may permit such modifications as will provide a substantially equivalent degree of safety.

2. Approval of Plans. Before installing or remodeling any oil burning equipment in other than dwellings, it is recommended that plans or sketches showing the relative location of burners, tanks, pumps, piping and elevations of buildings and their lowest floors or pits, relating to the proposed installation or alteration, be submitted for approval to the inspection department having jurisdiction.

3. Approved Burners. (a) Oil burners shall be of approved type.

(b) Oil burners for which a competent attendant will not be constantly on duty in the room where the burner is located, while the burner is in operation, shall be arranged to prevent abnormal discharge of oil at the burner by automatic means specifically approved for the burner with which it is used.

NOTE. Burners so equipped are listed by Underwriters' Laboratories as domestic oil burners.

(c) Oil burners for which a competent attendant will be constantly on duty in the room where the burner is located, while the burner is in operation, are not required to be equipped with automatic means for preventing abnormal discharge of oil at the burner. When automatic features are installed in connection with oil burners of this type such automatic devices shall be specifically approved for use with the burner to which they are attached.

NOTE. Oil burners of this type are listed by Underwriters' Laboratories as industrial oil-burning systems.

4. Fuel Oil. (a) Fuel oil used with the burners to which these regulations apply shall have a flash point of not less than 100 deg. Fahr., and shall be a hydro carbon oil free from acid, grit, and fibrous or other foreign matter likely to clog or injure the burners or valves. The flash point shall be determined by the Pensky-Martens Closed Tester, in accordance with the method of test adopted by the American Society for Testing Materials (A. S. T. M. Designation: D93-22), except that the Tag Closed Tester (A. S. T. M. Designation: D56-21) shall be authoritative in case of dispute concerning oils having a flash point in the vicinity of 100 deg. Fahr.

(b) The grade of fuel oil used with any burner shall be one which tests and experience have shown to be suitable for use with that burner.

NOTE. The list of inspected oil burners issued by Underwriters' Laboratories gives, for each burner, the minimum grade of fuel oil for which the burner is suitable.

5. Gravity Feed to Burners. (a) Gravity feed shall be used only with burners arranged to prevent abnormal discharge of oil at the burner by automatic means specifically approved for the burner with which it is used.

(b) Gravity supply tanks shall not exceed 275 gallons individual capacity. Where more than one grav-

ity supply tank is used, such tanks shall be connected to the feed pipe leading to the burner through a manually operated, approved three-way valve in such a way that only one tank can discharge its contents at a time.

(c) Where oil is supplied to the burner by gravity and a constant level device is not incorporated in the burner assembly or in an auxiliary tank used in connection with an automatic pump, an approved constant level device shall be installed in the oil feed line at the gravity tank or as close thereto as practicable, to insure uniform delivery of oil to the burner. The vent opening of such constant level device shall be connected by piping or tubing to the gravity tank vent pipe.

6. Pressure Tank Feed shall be used only with burners arranged to prevent abnormal discharge of oil at the burner by automatic means specifically approved for the burner with which it is used.

Pressure tanks shall not exceed a capacity of 60 gallons, and shall not be operated at pressures exceeding 50 lb. per sq. in. Pressure tanks shall be equipped with a reliable pressure gage.

7. Installation of Underground Tanks. (a) Oil supply tanks should preferably be located outside of buildings and underground with top of tank below the level of all piping to which the tank is connected, to prevent discharge of oil through a broken pipe or connection by syphoning.

(b) Underground tanks shall be so buried as to have a cover of earth not less than 2 ft. thick, or shall be covered with not less than 1 ft. of earth on top of which shall be placed a slab of reinforced concrete not less than 4 in. thick. The slab shall be set on a firm, well tamped earth foundation and shall extend at least 1 ft. beyond the tank in all directions. Where tanks are buried underneath buildings such a concrete slab shall be provided in every instance.

8. Installation of Tanks Inside Buildings. (a) Oil supply tanks larger than 60 gallons capacity shall not be located in buildings above the lowest story, cellar or basement.

(b) Unenclosed inside storage tanks and auxiliary tanks shall not be located within 7 ft., horizontally, of any fire or flame.

(c) Oil supply tanks located inside buildings shall not exceed 275 gallons individual capacity or 550 gallons aggregate capacity (in one building), unless installed in an enclosure or casing constructed as follows:

The walls of the enclosure shall be constructed of reinforced concrete at least 6 in. thick or of brick at least 8 in. thick, and shall be bonded to the floor. The space between the tank and the enclosure shall be completely filled with sand or well tamped earth. Where the floor or other construction immediately above the tank is of fire-resistive construction capable of safely sustaining a load of 150 lb. per sq. ft., the walls of the enclosure shall be carried to a height not less than 1 ft. above the tank and the space filled with sand or well tamped earth to the top; otherwise the enclosure shall have a top of reinforced concrete at least 5 in. thick or of equivalent construction.

Instead of an enclosure as above described the tank may be encased in reinforced concrete not less than 6 in. in thickness; applied directly to the tank so as to completely eliminate any air space.

(d) In ordinary buildings the nominal gross capacity of tanks shall not exceed 5,000 gallons.

(e) In fire-resistive buildings the nominal gross capacity of the tanks shall not exceed 15,000 gallons.

(f) In any building, if in a fire-resistive or detached room cut off vertically and horizontally in an approved manner, from other floors of the main building, the nominal gross capacity of tanks shall not exceed 50,000 gallons, with an individual tank capacity not exceeding 25,000 gallons.

9. Installation of Outside Aboveground Tanks. (a) Outside aboveground tanks shall not be located in closely built-up areas.

(b) The distance from outside aboveground tanks to line of adjoining property or nearest building shall not be less than set forth in the table below.

Capacity of Tanks Gallons	Minimum Distance, Feet	Capacity of Tanks Gallons	Minimum Distance, Feet
750 or less	5	128,000 or less	75
1,100 or less	10	200,000 or less	85
3,000 or less	20	266,000 or less	100
21,000 or less	25	400,000 or less	150
31,000 or less	30	666,000 or less	250
45,000 or less	40	1,333,000 or less	300
64,000 or less	50	2,666,000 or less	350
80,000 or less	60		

(c) For tanks of over 400,000 gallons capacity, a minimum distance of 175 ft. to adjoining property or nearest building may be permitted, provided that an approved type of fire extinguishing system is installed for the tank and covering other parts of the yard or system.

(d) For tanks permitted from 50 ft. and up to 175 ft. of building or property line, the capacity may be increased 33 per cent if the tank is provided with an approved fire extinguishing system.

(e) The minimum distance from tanks to adjacent tanks shall conform to the following table:

Capacity of Tank Gallons	Minimum Distance to any Other Tank	Capacity of Tank Gallons	Minimum Distance to any Other Tank
18,000 or less	3 feet	75,000 or less	13 feet
24,000 or less	5 feet	100,000 or less	15 feet
48,000 or less	10 feet	100,000 to 2,500,000	One tank diameter
75,000 or less	13 feet		

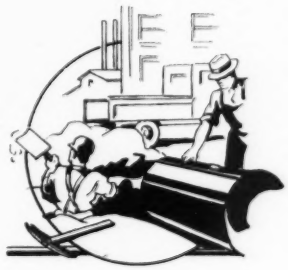
(f) Tanks shall be so located as to avoid possible danger from high water. When tanks are located on a stream without tide, they shall, where possible, be down stream from burnable property.

(g) Embankments or Dikes. In locations where aboveground tanks are liable in case of breakage or overflow to endanger surrounding property, each tank shall be protected by an embankment or dike. Embankments or dikes shall be made of clay-core cinderfill, earthwork, masonry or approved concrete. Such dikes shall have a capacity of not less than that of the tank or tanks surrounded. Earthwork embankments shall be firmly and compactly built of good earth from which stones, vegetable matter, etc., have been removed, and shall have a flat section at the top of not less than three feet and a slope of at least 1½ to 1 on both sides. Small tanks with capacities of not over 25,000 gallons each may be grouped and a dike built around the group of tanks.

Embankments or dikes shall be continuous with no openings for piping or roadways. Piping should preferably be laid over or under embankments.

10. *Setting of Tanks.* (a) Underground tanks shall be set on a firm foundation and surrounded with soft earth or sand well tamped in place. Where necessary to prevent floating they shall be securely anchored or weighted.

(b) Inside storage and auxiliary tanks shall be securely supported by substantial incombustible supports to prevent settling, sliding or lifting.



(c) Inside storage tanks shall be installed with the bottom pitched to the draw-off or drain opening with a slope of not less than ¼-in. per ft. of length. The draw-off or the drain opening shall be provided with suitable piping connections in a form to provide a sump from which water or sediment can be readily drained at regular intervals.

(d) Outside aboveground tanks shall be set on a firm foundation. Those more than 1 ft. above the ground shall have supports of masonry or protected steel, except that wooden cushions may be used. No combustible material shall be stored under or within 10 ft. of outside aboveground tanks.

11. Construction of Tanks. (a) Underground tanks and tanks inside buildings shall be constructed of steel or wrought iron of a minimum gauge (U. S. Standard) in accordance with the following table, except that for tanks of 181 to 275 gallons capacity, installed in buildings, and without masonry enclosures the minimum gauge shall be No. 14. Steel or wrought iron thinner than No. 7 gauge used in the construction of underground and enclosed tanks shall be galvanized.

Capacity, Gallons	Minimum Thickness	Weight lb. per sq. ft.
7 to 285	16 gauge	2.50
286 to 560	14 gauge	3.125
561 to 1,100	12 gauge	4.375
1,101 to 4,000	7 gauge	7.50
4,001 to 12,000	¼ inch (nominal)	10.00
12,001 to 20,000	⅝ inch (nominal)	12.50
20,001 to 30,000	⅜ inch (nominal)	15.00

If adequate internal bracing is provided, tanks of 12,001 to 30,000 gallons capacity may be built of ¼-in. plate.

NOTE. For tanks larger than 1,100 gallons capacity, a tolerance of 10 per cent. in capacity is permitted.

(b) Outside aboveground tanks, including tops, shall be constructed of steel or wrought iron of a thickness in accordance with the following requirements.

1. Horizontal or Vertical Tanks Not Over 1,100 Gallons Capacity.

Capacity (Gallons)	Minimum Thickness of Thickness
1 to 60	18 gauge U. S. Standard
61 to 350	16 gauge U. S. Standard
351 to 560	14 gauge U. S. Standard
561 to 1,100	12 gauge U. S. Standard

2. Horizontal Tanks Over 1,100 Gallons Capacity.

Tanks having a diameter of not over 6 ft. shall be made of at least $\frac{3}{16}$ in. steel or wrought iron.

Tanks having a diameter of over 6 ft. and less than 11½ ft. shall be of at least ¼ in. steel or wrought iron.

3. Vertical Tanks Over 1,100 Gallons Capacity.

The minimum thickness of shell or bottom shall be $\frac{3}{16}$ in. The minimum thickness of roof shall be ⅛ in.

The thickness of shell plates shall be in accordance with the following formula:

$$t = \frac{H \times D}{8{,}450 \times E}$$

t = thickness of plate in inches.

H = height of tank in feet above the bottom of the ring under consideration.

D = diameter of the tank in feet.

E = efficiency of vertical joint in ring under consideration.

In computing the efficiency of vertical joints the tensile strength of steel shall be taken as 55,000 lb. per sq. in., and the shearing strength of rivets, 40,000 lb. per sq. in.

NOTE. Vertical steel tanks with riveted shells constructed in accordance with American Petroleum Institute standards No. 12-A may be considered as meeting the above requirements.

(c) Joints shall be riveted and calked, brazed, welded or made tight by some equally satisfactory process. Tanks shall be tight and sufficiently strong to bear without injury the most severe strains to which they may be subjected in practice. Shells of tanks shall be properly reinforced where connections are made. All connections to storage tanks other than outside aboveground storage tanks, shall be made through the top of tank above the liquid level, except that tanks of not over 275 gallons capacity may have one bottom connection for gravity feed and one opening for an approved key stem gate valve to facilitate cleaning or for a scavenging line to be run to the outside and capped oil tight when not in use.

NOTE. While correct design and use of proper materials are essential, regardless of the type of construction employed, where tanks are welded the safeness and suitability of the complete container for the purpose intended will also equally depend upon the skill and competence of the welder. For this reason it is urged that the inspection department having jurisdiction assure itself of the integrity and responsibility of the firm or individual doing the work, the degree

to which welders are qualified, and the character of supervision maintained while welding is in process.

(d) Pressure tanks shall be designed for at least six times the maximum working pressure.

(e) Tanks shall be thoroughly coated on the outside with tar, asphaltum, or other suitable rust-resisting paint. Where placed in corrosive soil special protection may be required.

NOTE. Tanks labeled by Underwriters' Laboratories have been tested and examined for compliance with these regulations and detail standards covering their design and construction.

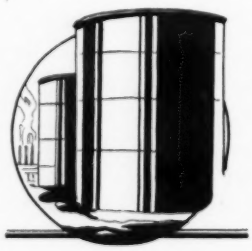
(f) For fuel oil heavier than 35° API, tanks may be made of concrete. (See separately published Regulations for details of construction of concrete tanks.)

12. Tank Vents. (a) Storage tanks shall (except for hydraulic or inert gas systems) be equipped with an open vent or an approved automatically operated vent, arranged to discharge to the open air. Vent openings and vent pipes shall be of ample size to prevent abnormal pressure in the tank during filling but not smaller than 1¼-inch pipe size.

NOTE. Where storage tanks are filled by the use of a pump through tight connections special consideration should be given to the size of the vent pipe to insure that it is adequate to prevent the development of abnormal pressure in the tank during filling. This may be accomplished by providing a vent pipe commensurate in size with the discharge of the pump used or by means of an approved signaling or limiting device.

(b) Vent pipes shall be arranged to drain to the tank. The lower end of the vent pipe shall not extend through the top into the tank for a distance of more than one inch.

(c) Vent pipes shall terminate outside of buildings at a point not less than 2 ft. measured vertically or horizontally from any window or other building opening. Outer ends of vent pipes shall be provided with a weather-proof hood. Vent pipes should terminate sufficiently above the ground to prevent their being obstructed with snow and ice. Vent pipes of tanks containing heaters shall be extended to a location where oil vapors discharging from the vent will be readily diffused without danger of ignition.



(d) Vent pipes shall not be cross-connected with fill pipes or return lines from burners.

(e) Pressure tanks shall be quipped with an automatic relief valve piped to discharge outside of buildings.

(f) Vent openings on outside aboveground tanks shall be provided with approved flame arresters.

(g) Emergency Pressure Reliefs. With the exception of vertical, cone-roof tanks having a roof slope less than 2½ in. in 12 in. and in which the strength of the joint between roof and shell is no greater than that of the weakest vertical joint in the shell, all aboveground tanks shall have some form of relief for preventing the development of excessive internal pressure in case of exposure fire surrounding the tank. The method of relief shall be acceptable to the inspection department having jurisdiction.

13. Tank Fill and Overflow Pipes. (a) Storage tanks, other than outside aboveground tanks, shall be filled only through fill pipes terminating outside of buildings at a point at least 5 feet from any building opening at the same or lower level. Fill terminals shall be closed tight, when not in use, by a metal cover designed to prevent tampering.

NOTE. In tanks containing heaters the tank end of the fill pipe should be sealed by a trap or should be extended to a point below the lower end of the suction pipe.

(b) Auxiliary tanks shall be filled by pumping from storage tanks.

(c) Cross connections permitting gravity flow from one tank to another shall be prohibited. This, however, shall not be construed as prohibiting the filling of an outside service tank by gravity, provided filling is through an open connection located within a dike surrounding the service tank, and provided further that such dike shall have a capacity equal to 1½ times the capacity of the tank being filled.

(d) Auxiliary tanks other than vacuum tanks shall be equipped with an overflow pipe draining to the storage tank, at least one size larger than the supply pipe.

(e) Overflow pipes of auxiliary gravity tanks shall have no valves or obstructions. Overflow pipes of auxiliary pressure tanks shall be provided with interconnected valves or other means for automatically venting the tank during filling.

14. Oil Gauging. (a) All tanks in which a constant oil level is not maintained by an automatic pump shall be equipped with an approved method of determining the oil level.

(b) Test wells shall not be installed inside buildings and where permitted for outside service shall be closed tight, when not in use by a metal cover designed to prevent tampering.

NOTE. The gauging of inside tanks by means of measuring sticks is a pronounced hazard and should not be permitted.

(c) Gauging devices such as liquid level indicators or signals shall be installed so that oil or vapor will not be discharged into the building from the fuel supply system.

15. Oil Pumps. (a) Oil pumps shall be of approved type, secure against leaks and shall be rigidly fastened in place.

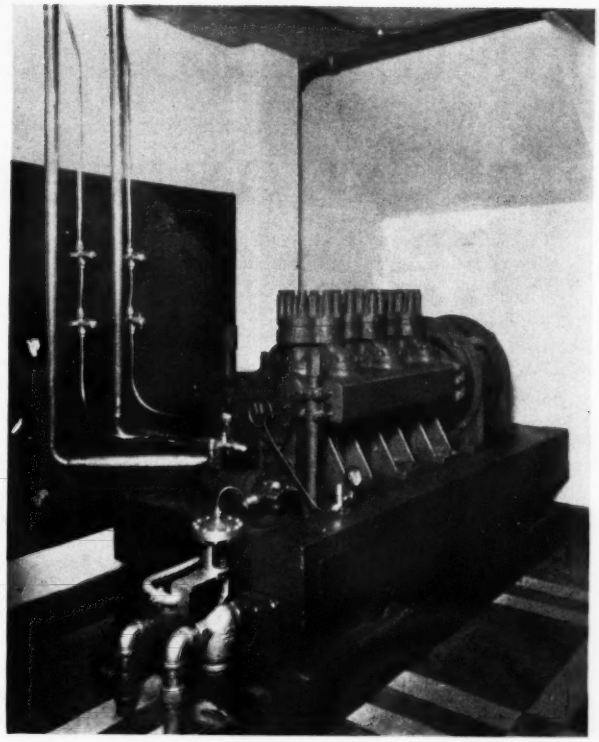
(b) Automatic pumps not an integral part of the burner shall be arranged to stop automatically in case of total breakage of the supply line to the burner.

(c) In isolated locations, where fire protection equipment is dependent upon a heating plant fired by an oil burner, oil pumps supplying the burner shall be installed in duplicate.

(d) Pumps used in connection with the supply and discharge of outside aboveground storage tanks shall be located outside of the embankments or dikes.

16. Piping. (a) All piping shall be standard full weight wrought iron, steel or brass pipe with standard fittings or approved brass or copper tubing with approved fittings, except that approved flexible metal hose may be used for reducing the effects of jarring or where rigid connections are impracticable.

(To be concluded)



The outline given in this article covers points to check in taking machines such as shown here, out of service for the winter

Servicing for Air Conditioning Jobs

By L. G. Huggins*

THERE are a number of precautions which should be taken in preparing an air conditioning system for the inactive winter season. The most important of these are as follows:

The refrigerant should be removed from the system and stored in the liquid receiver of the condensing unit, to avoid loss due to leaks occurring in the winter. With a compressor standing idle for a long period of time, the oil on the face of the seal may be dissolved by the refrigerant, leaving this seal face dry and the possibility of the refrigerant escaping at this point is greatly increased. If a machine is in frequent use, this is not a problem, but if it is to stand idle for months, as it probably will this winter, your customer may find he has to buy a new charge of refrigerant next spring unless this precaution has been taken. This new charge of refrigerant will greatly exceed the cost of having a dealer service the machine this fall and next spring.

All water should be removed from the condenser, and in the case of water-cooled compressors, from all cooling jackets. Many condensing units are built with spiral coils so arranged that water will not drain from them completely by gravity. Therefore, the safe procedure is to blow all water out of the cooling coils by means of compressed air. A small tank of compressed air is usually carried to the job by the service man for this purpose.

Many condensing units have automatic water regulating valves which normally are closed when the condensing unit is not in operation. It is usually possible to remove the valve seat from these valves so that water can be blown out readily. Unless this valve is opened, it will not be possible to remove completely water from the system.

The safest procedure after water has been removed from the condenser is to disconnect the water pipe leading to the condensing unit and cap this pipe. Usually a union will be found near the machine which will make it easy to remove this water connection. This precaution will prevent any possibility of some unau-

(Continued on Page 102)

*Technical Supervisor of Westinghouse Air Conditioning Dealers.

What the A. H. and A. C. Know About Electrical

This installment of Mr. Thomas' series begins a discussion of alternating current. The very clear and understandable way in which he has compared electricity, its flow and action, with water and piping makes his information of particular value to the automatic heat and air conditioning dealer. Later articles will deal with applications of electricity to A. H. and A. C. installations and control jobs

By O. W. Thomas

WHEN next I called on Mr. Lucas he urged me to continue our discussion of electricity in general and electric motors in particular. As we had discussed direct current and direct current motors before, we decided to start with alternating current this time.

"As you probably know, an alternating current is the same as a direct current except that it flows first in one direction and then in the other, while a direct current always flows in one direction. It is called an alternating current because the current flow alternates from one direction to the other and back again.

"The theory of an alternating current is illustrated by the water and electrical currents shown in Fig. 1. You will notice that the water circuit consists of a plunger pump; a double acting water wheel, a water meter and a gauge, all connected by piping. Likewise the electrical circuit consists of an alternating current generator (sometimes called an alternator) an alternating current motor, an ammeter, and a voltmeter, all connected by copper wire.

"If the plunger is pushed down (direction A) the water will flow through the circuit in that direction, but if the plunger is pulled up, the water will flow in direction B. When the plunger is moved up and down a number of times, the water flow in the circuit will be first in one direction and then in the other, or, in other words, alternating flow will be produced.

"The alternating current generator acts in just the same way, sending an electric current in one direction and then in the other, producing an alternating current."

"I can't see that such a current would be of much use," my friend stated.

"It is, though, in many ways. Suppose we think about the water circuit again. As far as I know, alternating water flow is never used to transmit power, but it could be. In Fig. 1, I have shown a double acting water wheel, which has two water inlets (one at the upper left hand corner and one at the lower right hand corner) and two outlets. It is provided with check valve at each inlet and outlet so that when the pump plunger is pushed downward, forcing the water to flow in direction A, the upper check valves will be closed and the lower ones opened. Water will then be forced through the lower half of the water wheel casing from right to left, turning the wheel in a clockwise direction.

"When the plunger is moved upward, the water will be forced in direction B. When the water flows in this direction the lower check valves are closed while the upper ones will be open, forcing the water through the upper half of the water wheel casing from left to right, which will also turn the wheel in a clockwise direction."

"That would work all right, wouldn't it?"

"It sure would. While this principle is not used with water, it is used a great deal in electrical work. As a matter of fact, some alternating current motors are made on exactly this principle, so let us assume that the alternating current motor shown in Fig. 1 is such a one. Does this comparison make clear to you now what an alternating current is?"

"Yes, it does. As a matter of fact, I never could understand how a current that was rushing back and forth could be used, but your double-acting, water-wheel made that point clear. I still don't see, though, how such a current can be measured."

"If you will notice here, I have marked the water meter 'A double-acting water wheel which is not allowed to rotate.'"

Dealer Should Terms and Facts

"Yes, but what does that mean?" Mr. Lucas next asked.

"We will suppose that the double-acting water wheel is equipped with perforated blades, which will let the water through, but will still try to move in the direction shown. Now if we fastened a strong scale to the crank arm of the water wheel, we could measure the turning effort or torque produced by the water. If we increased the water flow, the turning effort would increase and the scale would read higher. Don't you see how we could soon work out a chart or formula that would tell us how many gallons of water is flowing each minute for any reading of the scale?"

"From your explanation, it would be very easy."

"A water meter could be made that way, although I don't know of any that are, but that is the way alternating current ammeters work. They are small motors that try to turn but are held back by a spring. The distance they stretch the spring shows how much current is flowing. They are known as double coil ammeters (because they are 'double acting' like the water wheel) to distinguish them from single coil ammeters, which can be used on direct current only. Double coil ammeters can be used for either direct or alternating current, so it is better to buy this kind for test work unless you are sure you will never need it for anything but direct current."

"How does an alternating current voltmeter work?"

"The same as an ammeter. If we were to connect the two sides of the water circuit with piping and to put a small orifice in the line, a little water would leak through at each stroke."

"The amount which leaked through depending on the pressure, I'd say."

"You're right. Then if we put a water meter in this line, the reading of this meter would tell us how many gallons leaked through the orifice each minute. Knowing the size of the orifice and the leakage, we could figure the pressure that caused this leakage, couldn't we?"

"And you could also set up a chart which would give you the pressure in pounds per square inch for every reading of the meter. Or you could make the meter read directly in water pressure."

"Exactly. That is the way alternating current voltmeters are made except that instead of using an orifice they use a resistance. They too, are double coil instruments, consequently, they can be used for either alternating or direct current, while single coil direct current voltmeters can not be used on alternating current, for the same reason that single coil ammeters can not be used on this current."

"What is frequency?" was next asked.

The operators shown here are determining the quietness of the motor, a prime requisite in all domestic installations of A. H. and A. C. plants

"The number of complete changes in current from one direction to the opposite direction and back again per second is known as the frequency. Each complete change is a cycle. For example, in a circuit having a frequency of 60 cycles the flow of current changes from one direction to the opposite one and back to the original

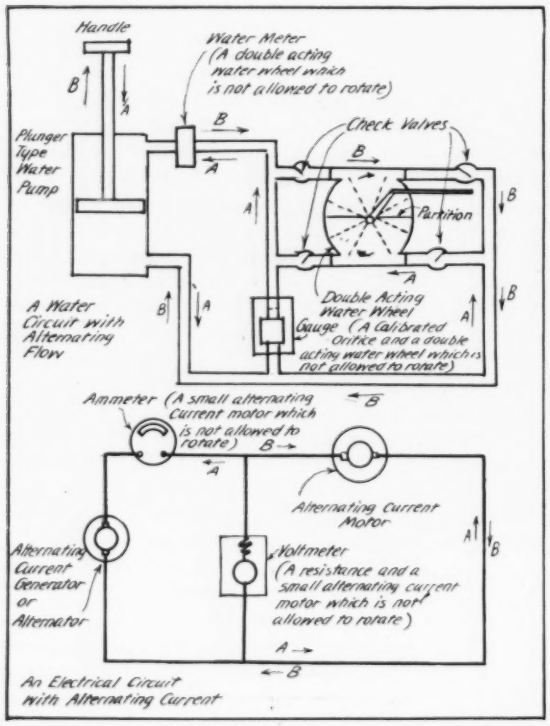

Handle
Water Meter (A double acting water wheel which is not allowed to rotate)
Check Valves
Plunger Type Water Pump
Partition
A Water Circuit with Alternating Flow
Double Acting Water Wheel Gauge (A calibrated orifice and a double acting water wheel which is not allowed to rotate)
Ammeter (A small alternating current motor which is not allowed to rotate)
Alternating Current Motor
Alternating Current Generator or Alternator
Voltmeter (A resistance and a small alternating current motor which is not allowed to rotate)
An Electrical Circuit with Alternating Current

Fig. 1—This illustration shows diagrammatically, the analogy between a piping system handling water and a wiring system handling electricity

direction sixty times a second. Corresponding with the method of designating the angles of a circle, a complete cycle is called 360 electrical degrees. Frequencies of 25, 30, 40, 50 and 60 cycles are used in this country. Many hydro-electric, or water power plants supply 25 cycle current and some supply 50 cycle current. There are twenty-five cycle plants at Niagara Falls. For this reason, a great deal of the current in Canada is 25 cycle, as is the current around Buffalo, N. Y.; 25 cycle is also found near Gary, Ind., and in the territory served by the water power plant at Keokuk, Iowa. There are a number of 50 cycle plants on the Pacific Coast. Some old privately owned plants supply 40 cycle current; one territory near Grand Rapids still has some 30 cycle current, but the greatest majority of the plants supply 60 cycle current. Frequencies of 25 and 30 cycles are not the best for lighting because of the flickering due to the comparatively slow reversing of the current. This flickering does not occur when 50 or 60 cycle current is used, because it reverses so rapidly.

"In a simple alternating circuit with two wires the voltage and current oscillate from a maximum in one direction to a maximum in the other and then back to the original direction, as explained above.

"How can we picture or visualize such a current? I believe I can help you visualize such a current if you will think of a row of buoys or floats anchored in the ocean on a day when there are heavy swells or rollers on the ocean, as I have drawn in Fig. 2. Some of the buoys will be at the top of the swells, while others will be at the low point as shown. If you were to draw a smooth curve through the water line of each buoy at some particular instant, you would obtain a curve such as shown in Fig. 2, which would also be the outline of the actual or instantaneous surface of the ocean.

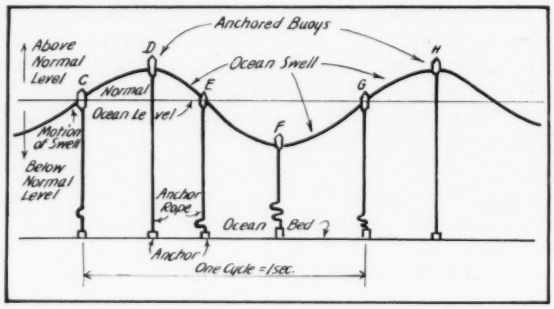


Fig. 2—This shows a wave motion where the portions of the wave, as indicated by the buoys, do not travel forward but merely have an up and down movement

"Yes, you would, because if you had the buoys close enough together, you would find them in all positions.

"Each buoy would move from the top position to the neutral position, to the low position, then back to the neutral position, and finally back to the top position. In other words, each buoy would alternate from one side to the other of the normal ocean level, just as an alternating current alternates from a maximum in one direction to a maximum in the other direction."

"I see that, I'm sure."

"I have shown both buoy C and buoy G in a position where they are just at the normal ocean level after coming down from the top of a swell. In other words, they

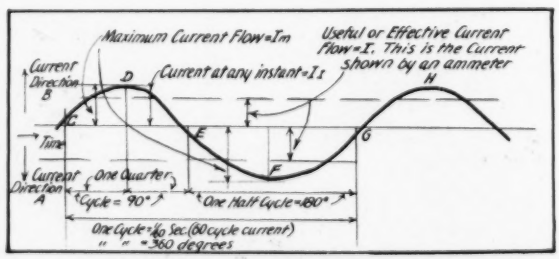

Maximum Current Flow = Im
Useful or Effective Current Flow = I. This is the Current shown by an ammeter
Current Direction
Current at any instant = It
Time
Current Direction
One Quarter Cycle = 90°
One Half Cycle = 180°
One Cycle = 1/60 Sec. (60 cycle current)
" " = 360 degrees

Fig. 3—Here is a curve showing the wave motion of alternating current flow in a single phase circuit. Compare this with the wave of Fig. 2

are just one cycle apart. If it takes the swell one second to move from buoy C to buoy G, the time for one cycle is one second, which makes the frequency one.

"If we plot the current flow in a two-wire single-

(Continued on Page 85)

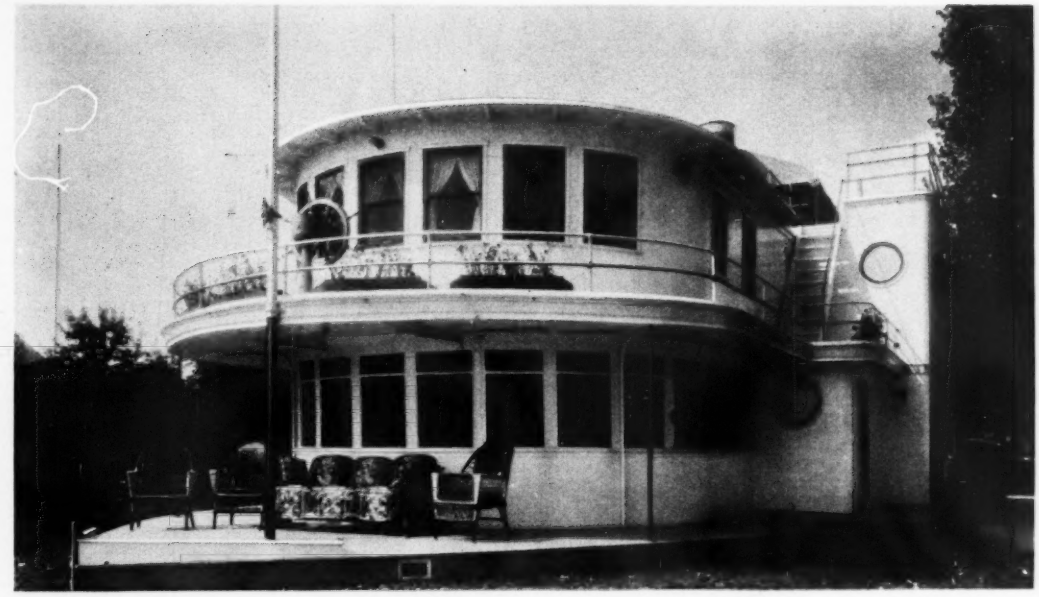


Fig. 1—". . . conceived the idea of using the two-story deck quarters in the building of marine home."

Deck House Becomes Home With Automatic Heat

Oil Burner and Controls Solve Exposure Problems

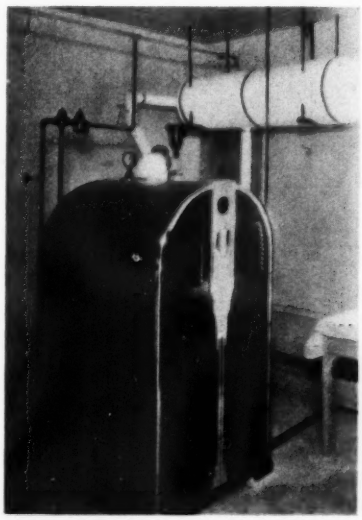


Fig. 2—Oil fired boiler supplies heat

BUILDING a houseboat on land has its advantages in providing unusually attractive living accommodations for the marine-minded home owner. But, according to Mr. C. E. Baisley, manager of the Great Lakes Engineering Works, this novel plan would not have worked out so well from a heating standpoint, had not modern automatic heating equipment saved the day.

When his company decided to remove the cabins of the "Brittania," one of its transport ships, to make more room for the transportation of automobiles, Mr. Baisley conceived the idea of using these quarters as the basis for a unique home on the banks of the Detroit River, at Ecorse, on an attractive site commanding a striking view of Fighting Island and the Canadian shore. The front elevation of the dwelling consists of the decks and cabins of the "Brittania," around which the rest of the living quarters are built.

On account of the unusual window exposure, however, the problem of providing efficient and economical heating facilities was confronted. How this difficulty was met furnishes one of the most striking examples of the adaptability of modern automatic heating to the most exacting conditions.

"In the few months that we have lived here," says the owner, "already we have enjoyed keenly the convenience of automatic heat in the chill mornings and evenings of early fall on the river. With our thermostat set permanently at 70 deg. Fahr., we find we have plenty of heat available during the few hours of the day when heat is wanted, and the house remains at an equally comfortable temperature during the warmer hours when artificial heat is not needed."

Case after case proves that air conditioning in restaurants results in more and larger sales checks

How to Figure Air Ventilating System

TO the reader who has progressed thus far it must have become increasingly evident that not only are temperature and humidity the two most important factors in air conditioning, but also that these may be treated separately in considering them, especially as far as absolute humidity and temperature are concerned. Let the matter of heating the air for winter use now be considered.

The conventional arrangement of heaters in connection with the air washer is shown in Fig. 1, where a preheater is used to bring the temperature of the air up to the point where the air may enter the washer without danger of freezing the water, and a reheater raises the air temperature, after the air leaves the washer, to whatever temperature is desired for the air to enter the room. The preheater usually is divided into two rows of heater sections extending entirely across the face of the heater, the first row—or row farthest from the washer—being controlled by a thermostat in the fresh air intake so as to turn on this row whenever the outside temperature goes below, say, 35 deg. Fahr. and the second row being controlled from a thermostat located in the washer outlet so that the air temperature leaving the washer can be held at the point necessary to give the saturated temperature required.

The reheater has nothing to do with the air washer and is installed simply to raise the air delivered to the room up to a point where cold drafts will be eliminated and where the heating surface in the room will not be called on to heat a quantity of incoming cold air. This heater is controlled from a thermostat located in the discharge duct near the fan, and by controlling the absolute

humidity in the washer and the final temperature in the reheater it will be seen that the absolute humidity and the entering air temperature both have been determined in the apparatus.

It may sound like a paradox to say that the air going to the room in the summer must be heated but this is *true* as it has been found by sad experience that air at too low a temperature cannot be injected into a warm occupied room without producing objectionable and even dangerous drafts. The limit at which air can be supplied to a room without giving rise to complaints has been found to be about 10 degrees below the room temperature or—when unusually good distribution of the entering air is obtainable—about 15 degrees below the room temperature. If, in order to secure the proper amount of relative humidity in the air, it is necessary to reduce the air to about 50 deg. Fahr., it will be evident that this air cannot be introduced into the room until its temperature has been increased by some means.

TWO METHODS TO INCREASE TEMPERATURE

There are two methods by which this increase of the air temperature may be accomplished.

1. By using steam in the winter reheater so as to warm the air to the desired temperature without adding any to its humidity and
2. By using some of the recirculated air at room temperature, which air is by-passed around the air washer and is mixed with the cooled and dehumidified air at the washer outlet before going to the fan.

Still a third method has been employed in some cases, which consists of forcing all of the air through the dehumidifier with a delivery temperature equal to that at which the air is to be supplied to the room in which case no reheating is necessary but a low humidity in the room becomes impossible due to the high temperature which must be used in the water. For example, in a room to be maintained at 70 deg. Fahr. the air—even with good distribution—could not come in at a temperature less than 15 degrees below the room or about 55 deg. Fahr., and therefore could not be reduced in the washer to a temperature below 55 deg. Fahr. unless reheating is used. At 55 deg. Fahr. in the washer the absolute humidity of the saturated air would be 64.40 grains per pound and when this air rose to 70 deg. Fahr. in the room the relative humidity would be 64.40/110.5 or about 58 per cent. If the room were being kept at 80 deg. Fahr. then the entering air would have to be at least 80 deg. Fahr. minus 15 degrees or 65 deg. Fahr. and the absolute humidity at the washer would be 92.60, which when raised to 80 deg. Fahr. in the room would give a relative humidity of 92.60/155.8 or 59 per cent.

The temperature of any mixture of air may be determined if the relative quantities and temperatures of the air to be mixed are known by the formula

$$\frac{T \times \text{parts plus } t \times \text{parts}}{\text{Total No. of Parts}} \text{ equals Resultant Temp.}$$

when T is the temperature of one portion of the air,
t is the temperature of the other portion of the air and Parts is the number of parts at each respective temperature.

For example, if ¼ of the air is at 70 deg. Fahr. and ¾ is at 50 deg. Fahr., there will be one part at 70 and three parts at 50 and the total parts amount to four. Then the resultant temperature of the mixture will be

$$\frac{70 \times 1 \text{ plus } 50 \times 3}{4} \text{ or } 220/4 \text{ or } 55 \text{ deg. Fahr.}$$

The same formula may be used with percentages of air substituted in place of the parts, thus if ¼ of the air is at 70 deg. Fahr., then 25 per cent of the air is at 70 deg. Fahr., and if ¾ of the air is at 50 deg. Fahr. then 75 per cent of the air is at 50 deg. Fahr., while the total air will be 100 per cent. This gives by using the same formula.

$$\frac{70 \times 25\% \text{ plus } 50 \times 75\%}{100\%} \text{ equals } \frac{5500}{100} \text{ or } 55 \text{ deg. Fahr.}$$

The resultant absolute humidities of air mixtures may be calculated in the same manner as in the foregoing. For example if ¼ of the air has an absolute humidity of 50 grains per pound and ¾ of the mixture has an absolute

Conditioning to Supplement in a Typical Restaurant Job

This eighth installment of a series on practical air conditioning tells of the use of the preheater and reheater, air mixtures and explains another problem

By Harold L. Alt

humidity of 30 grains per pound what is the resultant absolute humidity of the mixture?

50 grains × 1 part equals 50
30 grains × 3 parts equals 90

Total parts .....4)140(35 grains resultant.

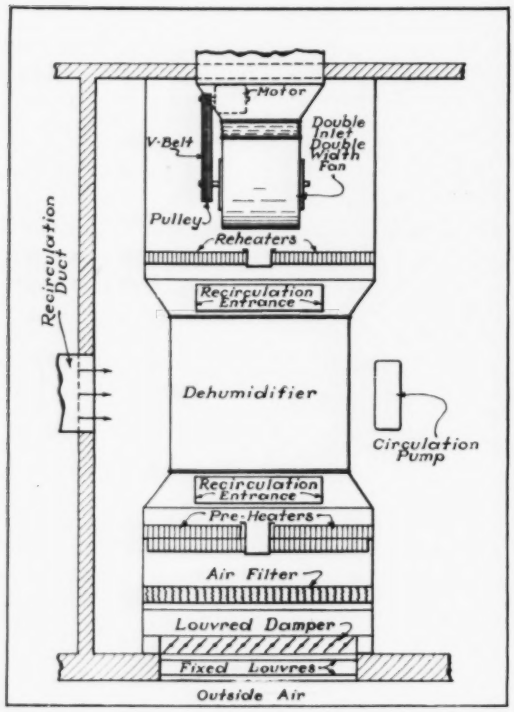


Fig. 1—This illustration indicates the usual arrangement of apparatus in central air conditioning plants

These formulae work equally well with *pounds* of air substituted in place of *parts*. For example, what will the mixture of 50 lb. of 70 deg. Fahr. air having 50 grains absolute humidity with 150 lb. of air at 50 deg. Fahr. and having 30 grains per pound result in?

$$\frac{50 \times 70 \text{ plus } 150 \times 50}{50 \text{ plus } 150} \text{ equals } \frac{11000}{200} \text{ or 55 deg. Fahr. temp.}$$

$$\frac{50 \times 50 \text{ gr. plus } 150 \times 30}{50 \text{ plus } 150} \text{ equals } \frac{7000}{200} \text{ or 35 grains.}$$

The relative humidity of the mixture is, of course, the number of grains contained in the mixture divided by the number of grains that the air could contain saturated or 35/64.40 or 54% (almost)

PROBLEM NO. 8

It is desired to condition and cool the small restaurant shown in Fig. 2 assuming that the serving counter already has a small exhaust fan which takes out about 1,000 c.f.m from the space back of the counter so that no heat is received in the restaurant from any of the counter equipment. What would be a good way to provide for the air conditioning of such a place?

SOLUTION

The following information is available from the plan given in Fig. 2. The restaurant is 50 ft. by 25 ft. by 15 ft. high and contains 18,750 cu. ft.; the walls are 12 in., brick, plastered, and have a coefficient of about 0.34 (see Table One in the July, 1934, issue); the floor is double wood flooring with no ceiling below so the coefficient also will be 0.34 and the ceiling consists of lath and plaster with a double wood floor above having a coefficient of 0.24 (See Table Three of above mentioned issue). The restaurant faces south and will be subject to sun effect. The customers number a maximum of about 140 and the help about 10 making an approximate total number of persons of about 150. Measuring the glass window around the indentation for the door shows that the total length of glass and door is about 30 ft., instead of the straight width of 25 ft. The glass runs practically from the floor to the ceiling.

The calculation of the heat transmission in through the building construction based on maintaining 15 degrees less than the outside dry bulb temperature will amount to the following:

BUILDING TRANSMISSION

North Wall
Gross Wall, 25 × 15 or 375 sq. ft.
Glass, none
Net Wall .....375 × 0.34 × 15.....1912 Btu.
East Wall
Gross Wall, 50 × 15 or 750 sq. ft.
Glass, none
Net Wall .....750 × 0.34 × 15.....3825 Btu.
West Wall, same as east wall.....3825 Btu.
South Wall
Gross Wall, 30 × 15 or 450 sq. ft.
Glass, 30 × 15 or 450 sq. ft.
Net Wall .....none
Glass .....450 × 1.1 × 15.....7425 Btu.
Floor
Gross Floor, 50 × 25 or 1,250 sq. ft.
Deduction for doorway 15 sq. ft.
Net Floor .....1,235 × 0.34 × 15.....6301 Btu.
Ceiling
Gross Ceiling, 50 × 25 or 1,250 sq. ft.
Deduction for doorway 15 sq. ft.
Net Ceiling .....1,235 × 0.24 × 15.....4446 Btu.
**Sun Effect*
South Wall, Glass, 450 sq. ft. × 40 Btu.....18,000 Btu.

TOTAL BUILDING TRANSMISSION.....45,734 Btu.

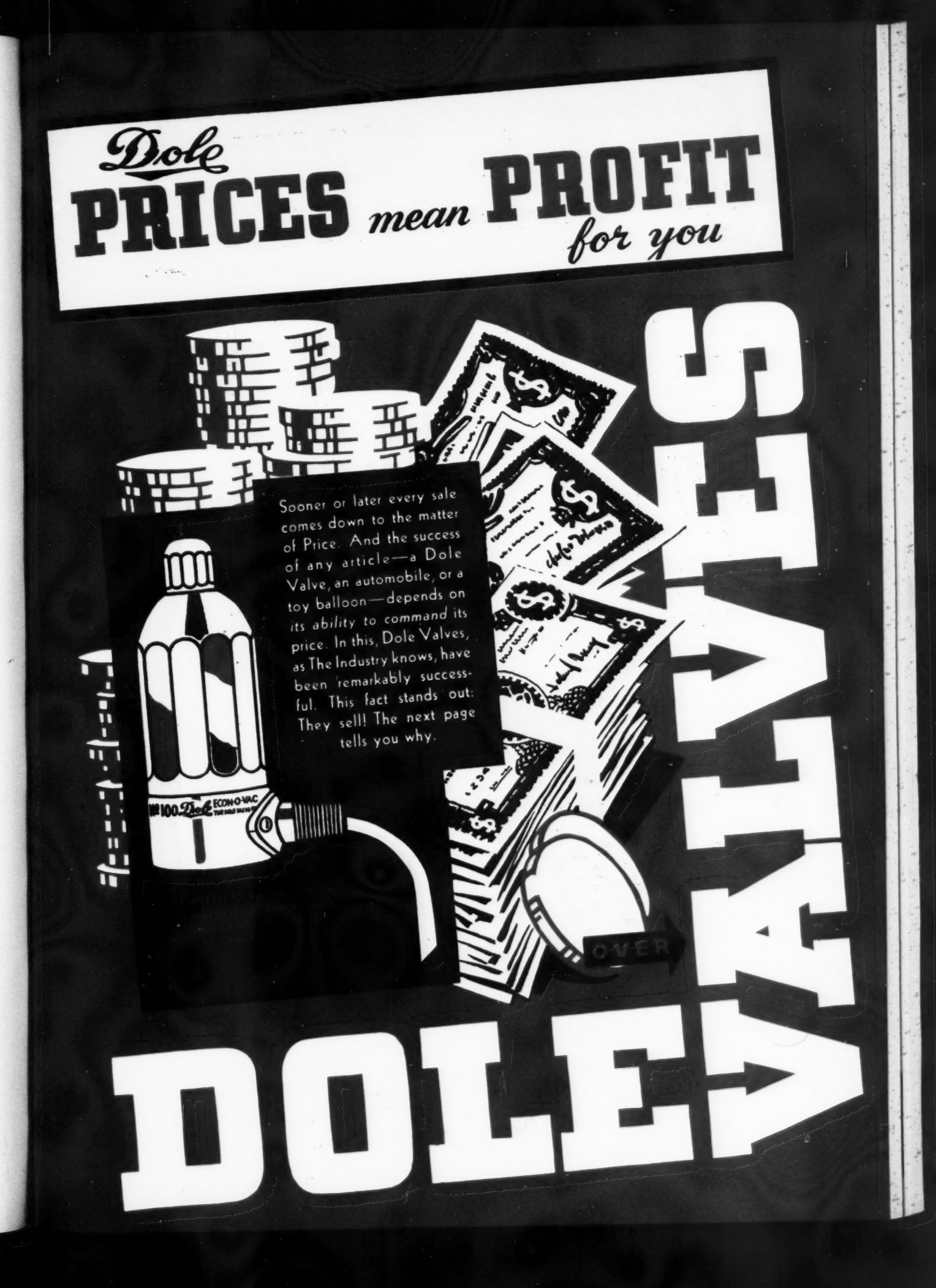
*This will be explained in the next installment.

HEAT PRODUCTION TO BE REMOVED

Body Heat

If the maximum outside temperature is assumed to be at 95 deg. Fahr. and the inside temperature is to be kept at approximately 15 deg. Fahr. below this—or at 80 deg. Fahr. —it will be seen from Table Three in the November, 1934, issue, that the sensible heat given off by each person will approximate 215

Dole PRICES mean PROFIT for you


DOLE VALVES
Sooner or later every sale comes down to the matter of Price. And the success of any article—a Dole Valve, an automobile, or a toy balloon—depends on its ability to command its price. In this, Dole Valves, as The Industry knows, have been remarkably successful. This fact stands out: They sell! The next page tells you why.
No 100 Dole ECON-O-VAC
OVER

PRICED *for* PROFIT

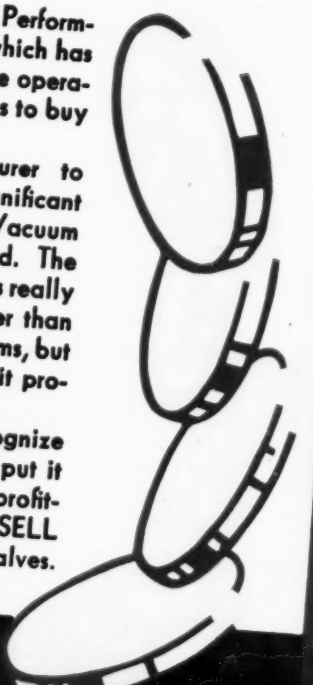
to jobber, steamfitter and user

It is a matter of company Policy that Dole Valves shall be money makers straight down the line—to those who handle them, and to those who buy them for savings in heating costs. To insure this is a matter of pricing.

And Price is a balance between cost accounting and the total of all Performance features. Here is the secret of that *ability to command their price* which has distinguished Dole Valves: What they will do for the user, in dependable operation over the longest period of time, is worth more than the money it takes to buy them. They are well worth the price.

To every one who takes part in the distribution, from manufacturer to user, this is the one significant statement—Dole Air and Vacuum Valves sell, and stay sold. The margin of Profit on the sale is really worth while—not only larger than the margin on many other items, but so much more frequent that it provides a real income.

You, in The Trade, will recognize that this rings true. You will put it among your first principles of profitable business to STOCK and SELL Dole Air and Vacuum Valves.



Dole Air and Vacuum Valve advertisements appearing regularly in Hotel Monthly; Hospital Topics and Buyer, National Real Estate Journal; Building Modernization; Heating, Piping and Air Conditioning; Plumbing and Heating Trade Journal; Domestic Engineering, and other publications, build prestige and acceptance—make it easy for customers to recognize their value.

The Straight Shank "Dole 1933" completing the line. Profit for you—performance for users.

"Such popularity must be deserved." The reference aptly applies to the "Dole 1933."

NRA

OVER

Dole

AIR AND VACUUM VALVES

THE DOLE VALVE COMPANY

1901-1933 CARROLL AVENUE, CHICAGO, ILLINOIS, U. S. A.

Offices and Representatives in all Principal Cities

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Btu., so for 150 persons the body heat given off to heat the air will be
150 persons × 215 Btu. or.....32,250 Btu.

Electrical Heat

In Fig. 2 the amount of electricity used is stated to be 1,500 watts and as each watt of electricity is equivalent to 3.4 Btu. the heat produced by this means will be
1,500 watts × 3.4 Btu. or..... .....5,100 Btu.

Food Heat

This is quite variable and is not likely to be as much on the hottest day as it is in cooler weather as many people prefer unheated food and cold drinks at such times; a restaurant more on the style of lunch room might have about 30 Btu. per person from this source and a restaurant serving a majority of heavy meals might run to 50 or 60 Btu. per person. It will be assumed in this case that the Btu. per person will run about 40 Btu. and that two persons per hour will be served in each sitting. This gives
140 persons × 2 × 40 Btu.....11,200 Btu.

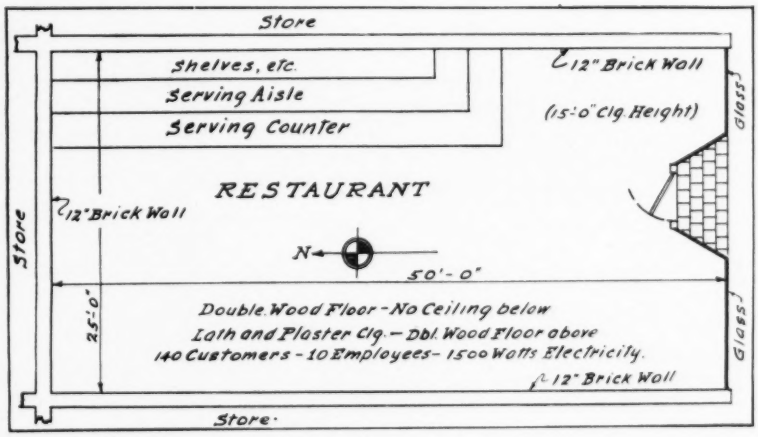


Fig. 2—Here is the plan drawing of the typical small restaurant considered for air conditioning in this problem

Infiltration Heat

Inasmuch as there is an exhaust system removing some 1,000 c.f.m. of air from the serving counter it will be necessary to supply a certain amount of fresh air if excessive inrushes of hot air are to be avoided every time the door is opened. Therefore, it will be desirable to supply a sufficient amount of outside air to make up for the exhaust removal and a sufficient amount in addition to make the leakage outward in which case the infiltration loss will be.....none

We can now summarize the heat necessary to be removed as calculated for the various portions of the load these being as follows:

Walls, Glass, Floor, Ceiling and Sun Effect..45,734
Body Heat 32,250
Electrical Heat 5,100
Food Heat 11,200
Infiltration Heat ..... none

TOTAL SENSIBLE HEAT.....94,284 Btu.

Amount of air required is determined by the temperature at which the air is delivered to the room and the amount of heat which the air will pick up in warming from its entering temperature to the room temperature. Usually 15 degrees is considered about as low as the air should be below the room and 10 degrees below the room is safer. Many air conditioners exceed these figures and, because of discharging toward the ceiling, secure good distribution and mixture with the room air before dropping back toward the floor. As it is not intended to use units in this instance, it will be assumed that the air enters at least 15 degrees lower than the room or at 80 deg. Fahr.—15 degrees which is at a temperature of 65 deg. Fahr.

The amount of heat picked up by one cubic foot of air then with 15 degrees rise in temperature will be 15 degrees / 55 degrees or 0.27 Btu. which is practically a quarter of a Btu. and so 4 cu. ft. of air will be required for every Btu. removed and the total air required *per hour* will be
94,284 Btu. × 4 cu. ft. or 377,136 c.f.h. which is
377,136 / 60 or 6,285 c.f.m.
to which 10 per cent will be added for safety making approximately 6,900 c.f.m.

Amount of fresh air required is generally considered at least 25 per cent of the total air to avoid the building up of odors. In this particular instance the amount of fresh air must exceed the counter exhaust by a sufficient amount to avoid the danger of inward leakage or infiltration. If 25 per cent is assumed as a tentative quantity it is seen that the amount of fresh air will be
25 per cent of 6,900 c.f.m., or 1,725 c.f.m.
This, it will be seen, is sufficient not only to supply the amount removed by the counter exhaust but also to provide an excess of
1,725 — 1,000 or 725 c.f.m.,
which must find its way out through the door and will prevent practically all inward leakage and infiltration.

RATIO OF OUTSIDE AIR FOR CASE

This is ample and the ratio of 25 per cent outside air supply will be considered correct for this case.

Absolute Humidity of Supply Air

The moisture added in the room per hour in grains is
(175 Btu. / 1,000) × 7,000 gr. × 150 persons or
183,750 gr. per hour.
The pounds of air supplied to the room is
6,900 cfm., × 60 / 13.34 or 31,034 lb., per hour.

(Continued on Page 103)

Automatic Heat and Air Conditioning Questions

A PROBLEM IN PERPETUAL MOTION

To the Editor:

Being an interested reader of your magazine I thought you, or some of your readers, might help me out with a knotty problem.

I saw an advertisement of a radiator valve which claimed to save users 33⅓ per cent on fuel consumption. Since I pay the coal man $150.00 per year, I am naturally interested in reducing it to $100.00, especially since I will have a net saving of $25.00 after paying for the valves.

With that $25.00 I could buy a thermostatic control for my boiler which I am told should save me 25 per cent on fuel consumption and still I would be $25.00 to the good.

A friend of mine has a humidifier which he says has reduced his coal bill at least 20 per cent so what better investment could I make than to buy one of these.

Now, my problem is this I still have $15.00 on the credit side of the ledger and my coal bill is down to $60.00 per year. What can I buy with that money so as to reduce my coal bill to a minimum?

No fair saying, "a ticket to Florida."

Connecticut. G. R. H.

To the Reader:

We are submitting your problem to our readers for their solutions.

In the meantime, we should suggest you be very careful because of the possibility of your finding yourself in the position of the man who, as the story goes, bought a number of fuel-saving gadgets for his automobile and at the end of every ten miles of driving he was confronted with annoyance of having to drain off the gasoline which accumulated in his tank.

Readers who have been bothered with this annoyance should address their comments to The Editor.

HOW TO MAKE COMBUSTION CHAMBER

To the Editor:

I would greatly appreciate your sending me a drawing of the fire travel that should take place in a cast iron horizontal boiler of 14 sections when equipped with a rotary oil burner giving a horizontal flame that goes back five to six sections. We have two boilers, each capable of taking care of 8,000 sq. ft. of radiation, and one boiler is sufficient to carry the building, the other being held as a spare boiler.

When both boilers are used we can obtain 7 lb. of steam pressure and we draw 11 in. of vacuum. While it is a tight job, the steam drops instantly and, when only one boiler is used, we lose all the steam in the building. The burners use 14 gal. of oil per hour. We have been wondering if the combustion chamber is as it should be—see sketch in Fig. 1—or if the loss of heat in the building is due to stack conditions which may be too small to take care of the boiler. Will you kindly let us have your opinion and advise as to what you think of rebuilding the combustion brickwork.

Conn. K. J. J.

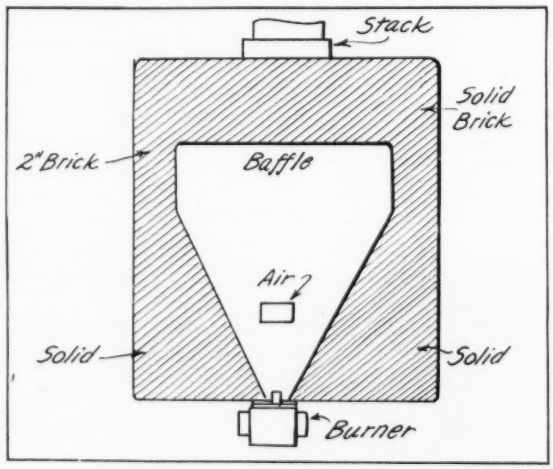


Fig. 1

To the Reader:

If our correspondent's net radiation load is not in excess of 5,500 sq. ft. e.d.r., one boiler should be able to carry the radiation without difficulty. He has a good make of boiler and, while he does not tell us the actual load on the boiler, he does say that one boiler will carry the building and we assume that he knows that this is correct. At 20 gal. of oil per hour we can assume that

20 gal. × 8 lb. × 18,000 Btu. or 2,880,000 Btu.

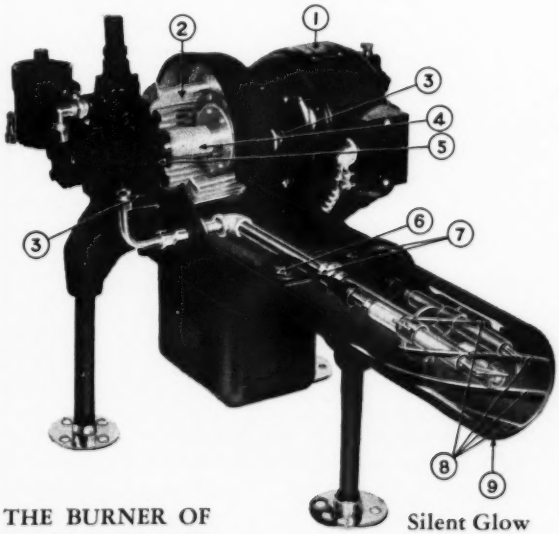
are liberated under the boiler each hour. If 80 per cent of this heat is absorbed by the boiler, the

2,880,000 Btu. × 80 per cent or 2,304,000 Btu.

should be delivered into the boiler water, which is equivalent to the amount indicated by the following:

. . . when a Man spends $5.40 to 'phone us how good Progressive Rotation is . . . that's News!

Have you ever been so enthusiastic about an oil burner as to spend $5.40 on a long distance call just to tell the manufacturer about it? The chances are you have not. But, then, have you ever investigated Progressive Rotation?



THE BURNER OF TOMORROW

Silent Glow Model 800

Flex-ile Drive (4) together with rubber motor housings (3) eliminates vibration.

Progressive Rotation, produced by rifled air tube (8) provides more efficient combustion with absolute quiet.

Radio interference eliminator, plus short (6 inch) high tension leads (7) prevents radio interference, while stream-lined terminals (6) further insure quietness.

Progressive Rotation is shattering all kinds of precedents. It is proving a burner can hold a perfect flame without constant ignition or the use of refractory materials. It is proving a burner can be a third smaller than ordinary units of equal capacity.

What is the fundamental difference between Progressive Rotation and old-fashioned gun-type burners? Simply this. Instead of depending on noise-creating turbulators to mix air and oil, Progressive Rotation employs a rifled air-tube. This causes the air to be whirled along in smooth, rhythmic circles. When co-mingled with the atomized oil, the progressive rotating action of the air creates a clean, bushy flame that remains suspended without the use of constant ignition or combustion walls. More heat is obtained per gallon of oil—and with an amazing absence of noise.

Mail the coupon below for full facts on this amazing development.

SILENT GLOW OIL BURNER CORPORATION

Factory: Hartford, Conn. *Branches:* Boston, Chicago

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Hartford, Conn., Dept. DE 12

Please send me at once the complete story on Progressive Rotation.

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Street .....

City ..... State .....

THESE SERVICES ARE FREE TO OUR READERS

1. ENGINEERING INFORMATION. Many problems in automatic heating or air conditioning are being answered by our engineering department. If you have a trouble job, send full details to our engineering editor and you will have an answer by return mail. Usually it is best to send a sketch.

2. BUYING INFORMATION. If you do not know where to purchase an item, our readers' service department will furnish you names and addresses of manufacturers of that item. If you wish to purchase an item of which you know only the trade name, this department will furnish the name and address of the manufacturer.

3. PRODUCT INFORMATION. If you are interested in studying air conditioning equipment, oil burners, stokers, boiler burner units, refrigerators, or any other item in this field that you are not now handling, our marketing staff will forward your name to leading manufacturers of that item with the request that they forward their catalog material to you.

4. SALES HELP. Merchandising experts will assist you in formulating sales plans, writing advertisements and direct mail letters, and in general will help you to solve any sales problems that may confront you.

ALL OF THESE SERVICES
are maintained for your convenience at no cost to you.
You are invited to use them freely.

WHAT IS YOUR PROBLEM?

READERS' SERVICE DEPARTMENT, 1900 PRAIRIE AVENUE, CHICAGO

2,304,000 Btu./240 Btu. or 9,600 sq. ft. e.d.r. This would seem to indicate that the burner is plenty large enough for the boiler.

The next question is, is proper combustion being secured? With knowing the kind of oil used we can give a rough figure of the amount of combustion space on the basis of 3½ cu. ft. per boiler hp. as 9,600 × 240 Btu./33,000 Btu. × 3 or about 210 cu. ft. We have no information with which to check the air, as the CO_2 content in the gases is not given. It may be that the chimney draft is too strong and that a lot of excess air is being used. If the chimney size is adequate to take care of a coal boiler of equal capacity undoubtedly it is sufficiently large to care for the oil installation; in fact, it is much more liable to be larger than necessary

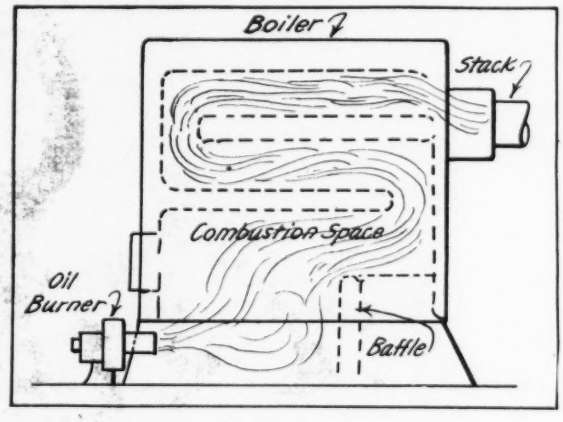


Fig. 2

and to have more draft than is desirable with an oil fired boiler. The general rule is that a chimney of 60 per cent of the area of a coal chimney is sufficient for oil. The height may be considerably less than for a coal boiler chimney as there is no draft loss in the fire to be taken care of.

Now as to the burner brickwork this does not appear incorrect from the small plan sketch submitted but as no section was made we have no information as to what this looks like in height and relation to the boiler. The combustion space may or may not be too small. The flame may or may not be the shape that the setting indicates. We can say, however, that the flame should not impinge on the brickwork at any point, that the flame should burn with a good orange color, that there should be no smoke and that the inward draft around the door openings should not be enough to blow out a lighted match. We do not think, that if all of these conditions are being met, that any particular fault can be laid to the brickwork. A sketch of the flame travel or rather flame and gas travel for this type of boiler is shown in Fig. 2.

The shortness of the flame is not objectionable if complete combustion is being secured as the heat generated by the flame may be absorbed by radiant heat rays penetrating the surfaces of the combustion chamber or by heating the gases of combustion which carry the heat into the flues where the flue heating surface will absorb the heat just the same; a longer flame would be liable to impinge on the baffle which would be objectionable. If these boilers are new boilers the whole trouble may be with dirty or oily water in the boilers.

INSULATION CUTS RADIATION NEEDED

To the Editor:

Enclosed herewith is the specification for insulation of a new building and I would appreciate you advising me as to the percentage of allowance to make for the radiation required in the building against a building of the ordinary construction with lath, plaster, strip-lap tar paper and drop siding with no insulation for the attic.

Nebraska. Z. M. F.

To the Reader:

The specification submitted by our correspondent requires strips of wood to be placed 2½ in. back from the inside face of the studs with ½ in. crating nailed against the strips and 2 in. of mineral wool between the crating and the lath and plaster. Over the plaster ceiling of the entire house a similar 2-in. layer of mineral wool is required. Our correspondent has submitted no plan or sketch of the house in question so that all we can do is to assume an average house and compute the probable difference in radiation for the house both insulated and uninsulated.

For this purpose a residence 25 ft. by 40 ft. will be assumed with 1/6 of the outside wall as glass and door area which is about an average figure for this type of construction; as several rooms will be corner rooms an average of 1½ air changes for the entire residence has been assumed. An outside temperature of zero and an inside temperature of 70 deg. Fahr. has been used for the temperature difference and the results show the following:

For the uninsulated house	
Lower Floor	192 sq. ft.
Upper Floor	288 sq. ft.
Total	480 sq. ft.
For the insulated house	
Lower Floor	171 sq. ft.
Upper Floor	189 sq. ft.
Total	360 sq. ft.

All of the radiation computed in the above is steam radiation at 240 Btu. per sq. ft.

This gives the following differences and percentage of reduction of radiation:

Floor	*Not Insulated*	*Insulated*	*Difference*	*Percentage*
Upper	288	189	99	34%
Lower	192	171	21	11%
Total	480	360	120	25%

From this it will be seen that—for the house assumed—the saving on the first floor would amount to 11 per cent while the saving on the second floor would amount to 34 per cent this larger amount being due to the stopping off of a large part of the heat loss through the ceiling to the attic as well as reduction of heat less on the outside walls while on the lower floor the only reduction in heat loss is for the outside walls. Our correspondent is not clear in his letter as to whether he has a two-story house or a one-story house and, if it is a one-story house, the reduction in radiation would be equivalent to that shown for the upper story, or 34 per cent.

It must be remembered that insulation does not do anything to reduce the high heat transmission of the win-

Quit with a pat

I SHOULD

HERE'S HOW INDIVIDUAL HEATING CONTRACTORS ARE CASHING IN ON THE NATIONAL HOUSING ACT

•

SALEM, MASS.
Ten sales and four good prospects.

•

CHICAGO, ILL.
Eight sales and ten prospects.

•

CLEVELAND, OHIO
Twenty-seven sales and six prospects for one contractor.

•

TAWAS CITY, MICH.
Three sales and one prospect.

•

BROOKLYN, N. Y.
Outstanding report shows sixteen sales and fifteen prospects.

•

LITTLE FERRY, N. J.
Contractor reports nine sales and five prospects.

•

JERSEY CITY, N. J.
Dealer reports twenty-one sales.

•

UPPER DARBY, PA.
One dealer reports twenty-three sales and twenty-five prospects.

•

PHILLIPSBURG, PA.
Four sales and six prospects.

•

SCRANTON, PA.
Six sales and five good prospects for one dealer.

•

COVINGTON, VA.
Contractor reports five sales and six prospects.

•

WASHINGTON, D. C.
Fifty-five sales and sixty prospects for one contractor.

•

Reports from hundreds of others show: "It's No Time To Quit When You Have A Pat Hand."

t hand?

NOT!

YOU have the cards—and the breaks are coming your way! Quit selling heating now? . . . Slow up your selling effort, just because winter's here?—Of course not! *You've just started!* No "seasons", no old customs, no so-called "buying habits" can stop your wave of business started by the National Housing Act.

You can forget what used to be. Forget those old sales obstacles—"winter" and "no money". Every home owner with a good reputation and a steady income is a potential buyer *now!* Uncle Sam has given him credit—and he is using it.

From every section of the country come reports of increasing business *that's going to keep on increasing.* Quit now? Not on your life! Not while the Better Housing Program is making people *buy.* Not while American Radiator's new payment plan is turning prospects into sales. Not with a complete line of American Radiator equipment for every heating requirement. Not while people want the comfort and convenience of modern heating with no down payment, no mortgage, no red tape . . . while you can offer 3 years to pay without recourse and without holdback. Not with "the coldest winter in 60 years" (that's what the forecasters say) as an extra ace up your sleeve.

This is the time to forget seasons—forget old habits. You have a pat hand in the new deal for home owners. Tell them that *it's never too late* to install heating. Get action now with a new poster and two new mailing pieces, made for just that purpose. Write for your samples today.

AMERICAN RADIATOR COMPANY

40 West 40th Street, New York, N. Y.

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

NRA CODE

dows, does little, if anything, to cut down the infiltration and so two great sources of heat loss remain unchanged. It will, and does, reduce the transmission through the outside walls and ceiling and we believe that in the average residence the figures will approximate those given here, although each residence will vary somewhat due to its shape, relative window area, etc.

POINTS TO CHECK ON OIL JOB

To the Editor:

In regard to an oil burner which I have installed in my home I would advise that prior to July, 1934, my steam boiler was fired with an oil burner and under this arrangement all of the radiators in the house would get hot and the boiler would show 2 lb. gauge pressure inside of 15 minutes. Since July, I have installed a new burner and it now takes over one-and-a-half hours to get the radiators hot and no pressure shows on the gauge at all. I have changed the steam gauge and the second one does not register either so I know that no steam pressure is being produced.

The burner has sufficient capacity to take care of the total load placed upon it but I am not at all satisfied with its performance and would like your opinion. A couple of tests have been made, which are as follows:

At 3 gal. per hour	
Draft over Fire	0.015 in.
Draft at Stack Base	0.020 in.
Stack Temp.	650 F.
CO_2	10½%
At 2.5 gal. per hour.	
Draft over Fire	0.015 in.
Draft at Stack Base	0.020 in.
Stack Temp.	625 F.
CO_2	11%
Load on Boiler	
Total Steam Radiation	620 sq. ft.
Allowed for 82 gal. H.W.	123 sq. ft.
Total	743 sq. ft.
Carried over	743 sq. ft.
25% for Pick-up	186 sq. ft.
Total	929 sq. ft.

and the name and size of boiler is enclosed herewith.

New York. O. E. G.

To the Reader:

If the load figures which you have submitted are correct—by which we mean that we do not see in them any allowance for the piping losses unless this is included in with the "total steam radiation"—then the amount of oil needed per hour should approximate

$$\frac{929 \text{ sq. ft.} \times 240 \text{ Btu.}}{144{,}000 \text{ Btu.} \times .70} \text{ or } 2.3 \text{ gal.}$$

Even with an additional 25 per cent for piping losses this would only increase it to

2.3 gal. plus 25 per cent of 2.3 or 2.9 gal.

If the burner is capable of burning oil at the rate of 3 g.p.h., it certainly seems that the burner is sufficiently large for the job.

Looking over the two tests which you have forwarded we find that the CO_2 is about as high as such burners are likely to run but that the temperature of the exit gases do not seem to be as low as they should be with proper conditions of heating surface. We do not believe that the exit gases at the 2.5 gal. rate should be over 500 deg. Fahr. whereas the test indicates 625 deg. Fahr. This would indicate an inadequacy of boiler capacity on the heating surface because the boiler is not absorbing the heat from the gases of combustion as well as it should.

On the other hand, you puzzle us by stating that with the old burner you raised steam and heated every radiator in 15 minutes. This seems to disprove the idea that the boiler heating surface is the cause of the trouble. It seems to prove rather that there is some difference which exists now, that did not exist before, and as the burner is the only item that was altered we do not blame you for suspecting the burner.

You should check up for the following:

a. See that the boiler flues are thoroughly cleaned out and that no cement, mortar, or other material has been splashed on them in setting the new burner so as to reduce their heat transmitting capacity.

b. See that the burner flame is a good orange yellow and that no smoke is being produced.

c. See that the flame does not impinge on the walls at any point.

d. Try the admission of slightly more air; it may be that incomplete combustion is the cause of some of the trouble.

e. See that the burner really is burning oil at the rate claimed. If the burner is only burning 1½ gal. when it is supposed to be burning 2.5 gal., of course, the amount of heat is proportionately reduced.

f. See that your time test compares in every way with that made on the first burner; we believe that when you say that it took only 15 minutes to heat the radiators with the old burner you mean with the boiler full of hot water practically at the boiling point; if the test you made in the summer with the new burner started with a cold boiler and cold water the time would be considerably longer, although it ought not to be as long as you state.

g. See that the boiler water is clean and particularly that no oil has got into the water.

We are sure that if you run down all of these points that somewhere you will find cause for the difficulty.

Motorstokor Corp. Moves General Offices to New Location

The executive and the general sales offices of the Motorstokor Corporation have been moved to 25 West 45th Street, New York City. The former quarters at 290 Hudson Street, New York City, will be maintained as the company's engineering departments and showrooms.

Hexcel Radiator Co. Moves to new Plant at Racine

Hexcel Radiator Company of Milwaukee, Wis., is moving its plant and office to Racine, Wis., where it will occupy a modern daylight building. The removal is going forward so rapidly that the new plant and office will be in operation before the end of the year.

Trupar, Zerozone and Copeland Have Been Consolidated

A consolidation of manufacturing facilities of three concerns manufacturing air conditioning equipment, refrigerators and commercial condensing units has just

taken place. The three concerns are: Copeland Refrigeration Corporation of Mount Clemens, Mich., Trupar Manufacturing Company of Dayton, Ohio, and Zerozone Refrigeration Corporation of Chicago, Ill., and the announcement was made by Dallas E. Winslow, president of Dallas E. Winslow, Inc., parent corporation of the Copeland Refrigeration Corporation.

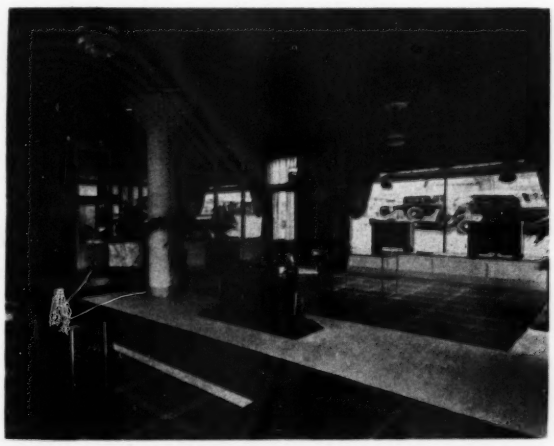
The combined operations of these three units will be housed in the manufacturing plant located at Holden and Lincoln Avenues, Detroit, formerly used by Lincoln Motor Car Co. This plant has a floor area of upwards of 200,000 square feet, with service from three main line railroads.

Copeland Refrigeration Corporation was formerly located in Detroit, then transferred to Mount Clemens, and now returns to its original locality in order to take advantage of improved manufacturing facilities.

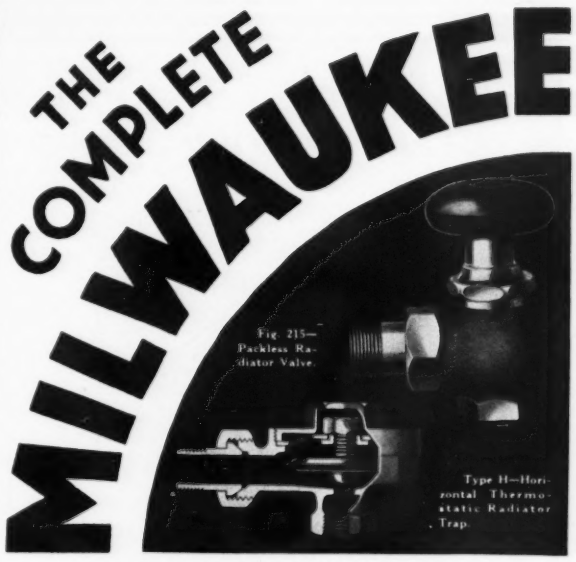
The three corporations affected by the move will need the services of approximately 500 employees. Occupancy of the new quarters is to begin December 1st and a large force of mechanics are now engaged in the transfer of machinery and equipment from the former locations of the three corporations affected.

Chrysler Air Conditioning Division Holds Formal Opening in St. Louis

The official opening of the air conditioning show room of the Weber Implement & Automobile Company was at Locust and Nineteenth Streets, St. Louis, Mo. The preview, attended by prominent heating, ventilating, and piping contractors, as well as appliance dealers through whom the equipment will be distributed, marked the initial showing in St. Louis of the air conditioning equipment manufactured by Chrysler motors to be marketed internationally by Airtemp Incorporated. H. C. Jamerson, general sales manager, and J. C. Chambers, assistant sales manager and director of engineering of Airtemp Incorporated, were present at the preview. Airtemp Incorporated, with headquarters in New York, is headed by Walter P. Chrysler Jr.



Interior of the showroom of the St. Louis distributor Airtemp, Inc.



HEATING SPECIALTY LINE

will play an important part in **BUILDING MODERNIZATION** *during* **1935**

Building modernization plans for 1935 will include . . . in most instances . . . heating system modernization. Tenant comfort during winter months is responsible, to a large degree, for year around tenant satisfaction.

. . . And satisfied tenants insure a maximum in building occupancy!

The complete "MILWAUKEE" Heating Specialty line solves the problems of highest heating efficiency and lowest maintenance costs. Every unit is scientifically designed and precision made to insure LONGER, MORE DEPENDABLE SERVICE.

The demand for "MILWAUKEE" Heating Specialties has shown an unusual increase during the past few months and during 1935 this increase will be even more emphasized. Building owners and managers are now demanding "MILWAUKEE'S" high standards of quality and long life which are guaranteed, only, in "MILWAUKEE" Heating Specialties.

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MILWAUKEE VALVE COMPANY

Manufacturers of
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"APPROVED" Bronze Valves

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JUST WHAT YOU'VE BEEN LOOKING FOR!

Designed from Bottom to Top to Be Used With Oil Burners

A FLASH BOILER STABILIZED—

20% of water boiling generates steam quickly.

80% stabilized the action of the quick steaming generators, holding heat the longest possible time.

A complete unit enclosing boiler and large tank connecting to copper coil for domestic hot water.

Oil burner of any make fits into ample space.

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WATERFILM BOILERS INC.
154 OGDEN AVE. JERSEY CITY, N.J.

The Weber Implement & Automobile Company, which was organized in 1902, has recently been appointed the distributor for the Airtemp equipment for the St. Louis trade area, which will include eastern Missouri and southern Illinois. Dealer appointments

J. Lawrence DeNeille, president of Heating, Piping and Air Conditioning Contractors National Association, is discussing with George Weber, Sr., one of the air conditioning units manufactured by Chrysler Motors

in the territory will be made immediately. The officers of the Weber Implement & Automobile Company are George Weber Sr., president; Albert Weber, vice president; and Edward R. Koenig, secretary and treasurer. H. W. Buschman is general sales manager of the Air Conditioning Division.

Tapp Joins Gilbert & Barker

Harry F. Tapp

Harry F. Tapp on November 15, joined the Gilbert & Barker Mfg. Co., as assistant to the president. His new headquarters are in New York at the RCA Building, Rockefeller Center.

Following his resignation in October as executive secretary of the American Oil Burner Association, Inc., Mr. Tapp received numerous offers from organizations both in and outside of the oil burner industry. After careful consideration, he decided to continue his work in this field by joining the Gilbert & Barker Mfg. Co., whose plant for manufacturing oil burners is located at West Springfield, Mass.

New Air Conditioning Companies

Clyde M. Allison, Inc., of New York, N. Y., has been incorporated with a capital of $5,000, to conduct an air conditioning business. Buttles, Goggins

& Fried of 60 East 42nd Street, New York City, are interested in this venture.

The Air Beam Circulator Company, Inc., of New York, N. Y., has been incorporated with a capital of 1,000 shares, of which 500 are preferred, at $10 per share, and 500 are common at no specified par value. David S. Herman, 45 Church Street, Paterson, N. J., was one of the incorporators.

Automatic Heating Contracts Corporation, which was recently organized to sell oil burning equipment, has started in business at Southfield Avenue, Stamford, Conn. The officers of the new company are: President, Edward T. Herndon, New York City; vice president, J. H. O'Brien, Yonkers, N. Y.; secretary-treasurer, Fred F. Hoyt, Stamford, Conn.

Electricity—

(Continued from Page 68)

phase circuit in the same way (see Fig. 3) we obtain a curve similar to the one shown in Fig. 2. Likewise, the distance from C to G represents one cycle, which, for a 60 cycle current is 1/60 of a second. One cycle, or the distance from C to G, is also 360 electrical degrees. Likewise, C to D is one-quarter of a cycle or 90 degrees, and E to G is one-half of a cycle or 180 degrees.

"If we plot the voltage, we obtain a very similar curve, as shown in Fig. 4. If the current flow and the voltage are in step, and we plot them together, we obtain the curves shown in Fig. 5.

"Alternating current ammeters or voltmeters are so designed that they will register the useful or effective value of the current or voltage without regard to the direction of the current or voltage. The maximum voltage (Em) is always equal to the effective value (E) times 1.414. Likewise, Im = 1.414I. Thus, if the effective voltage as measured by a voltmeter is 110 (E = 110), the maximum voltage (Em) is found as follows:

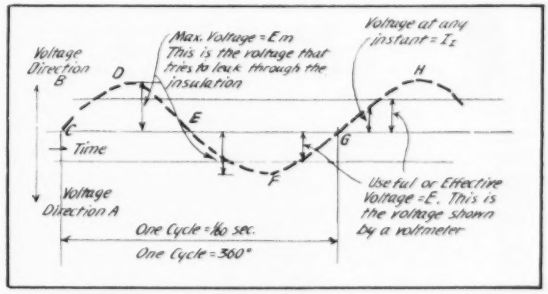
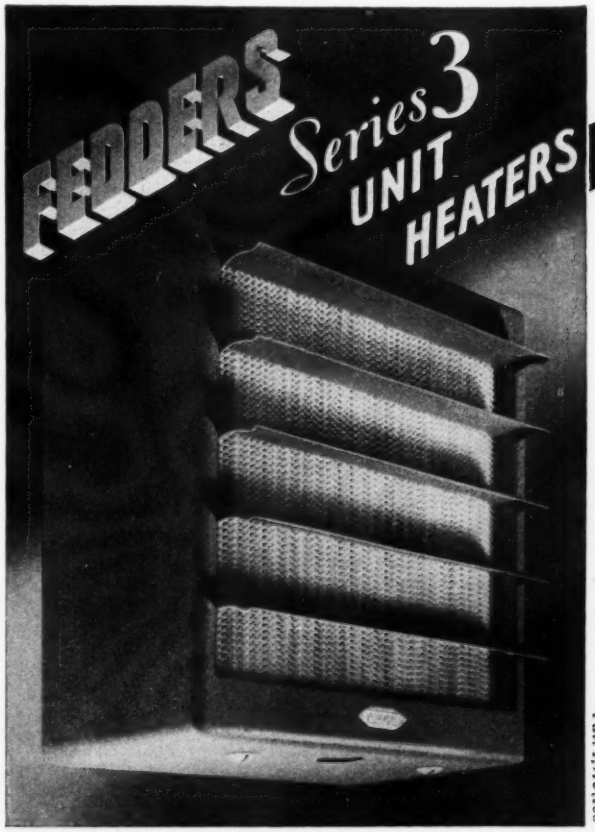


Fig. 4—Diagram covers alternating voltage in a single phase circuit

"Em = 1.414 × E = 1.414 × 110 = 155.5 volts. Also, if I = 10 amperes, then Im = 1.414 × 10 = 14.14 amps."

"Does this mean that if an alternating current voltage



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MODERNIZE *the* HEATING SYSTEM *with the* CADWELL CONTROL UNIT

A Feed valve, a relief valve, a back pressure valve and a ball check and screen are combined in this one unit.

This unit is protected by patents and patent applications.

RIGHT now a larger percentage of F. H. A. dollar is going to the heating industry than to any other . . . and it is safe to assume that the greater portion of heating business is going for *Modernization*. Just how much of this work will find its way into your shop largely depends on the heating equipment you handle.

The new CADWELL Control Unit fits *perfectly* into every modernization program which involves hot water heating systems. In fact, the CADWELL Unit is *essential* to the *proper* and *complete* modernization of this type of system. In the CADWELL Control Unit you can offer your customer the *combined* advantages of a *feed valve*, a *relief valve*, a *back pressure valve* and a *ball check and screen* . . . in no other *single* unit is this combination available.

The CADWELL Control Unit closes by *internal pressure*. No heavy springs to make valve seats stick. Valve is closed tightly by one pound drop in pressure. To test the CADWELL Unit a simple downward thrust of the center pin is all that is required. This removes all sediment from the valve seat. When it is necessary to clean or inspect the screen and feed valve these may be detached *without drawing water from the system*. Syphoning which would otherwise occur from breaks in the supply line are prevented by the check valve. A *greater* degree of *sensitivity* and *accuracy* is attained by means of a point relief. The lever on top of the unit makes for *quicker* filling.

CADWELL Air Valves and PERFECTION Floor and Ceiling plates are also ideally adapted to modernizing programs.

Recommend the CADWELL Control Unit for *every* hot water heating job and assure your customer a properly modernized heating system and a comfortably heated home. The CADWELL Control Unit is sold through the Wholesaler. Circulars giving complete details sent upon request. A few territories open for representatives. References required.

The BEATON & CADWELL MFG. CO.
Established 1894
NEW BRITAIN, CONN.

reads 110 volts, the real voltage difference, at the maximum point is 155.5 volts?"

"Yes, and it is this maximum voltage that the insulation must hold or resist."

"Why aren't voltmeters made to read the maximum voltage, then?"

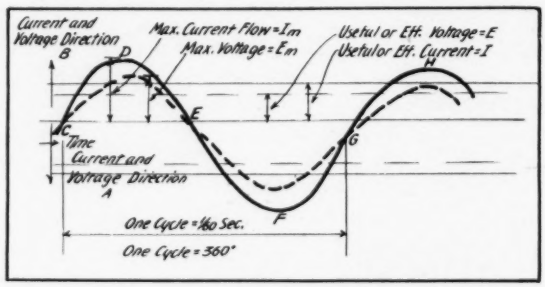

Fig. 5—Here are both alternating current and voltage in a single phase circuit when the current and voltage are in step

"Because we are not so much interested in the maximum voltage as we are in the useful or effective voltage.

"In an ideal circuit, which has resistance only, the voltage and current curves are always together, just as the water pressure and water flow curves for the water circuit shown in Fig. 1 would always be together. This is true because the water does not compress and starts moving as soon as the pressure increases. The current and voltage curves for an ideal electrical circuit are shown in Fig. 5.

"Suppose, however, that there is an air pocket on each side of the plunger. When the plunger is reversed, the pressure is then built up in the opposite direction, but

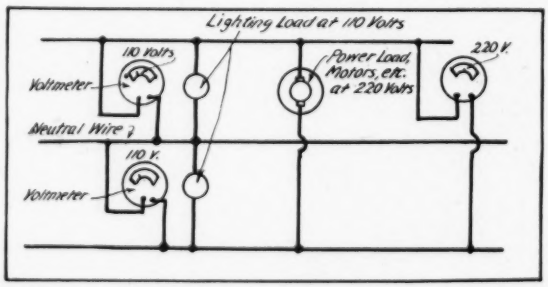

Fig. 6—A typical 110-220 volt, 3 wire alternating current A. C. service

the water would not start to move because the air would compress, and until after this happened the water would not move. In other words, the movement of the water would lag behind the movement of the plunger.

"Likewise, in an electrical circuit the current flow lags behind the voltage when there is 'inductance' in the circuit. For all practical purposes, 'inductance,' which occurs only in an alternating current circuit, can be considered similar to an air pocket in a water circuit. This comparison is a good one because inductance in an alternating current circuit and an air pocket in a water cir-

cuit both reduce the power delivered because the flow of current or water is lagging, causing a loss in power.

"In an alternating circuit, there is another factor which may cause a loss of power, namely, 'capacitance,' which is caused by putting a condenser in a circuit. Just as inductance causes the current to lag behind the voltage, so capacitance causes the current to lead the voltage. Anything which keeps the current out of step with the voltage causes a loss of power. For this reason, a condenser, which produces capacitance causing the current to lead, reduces the amount of power delivered by an alternating current circuit."

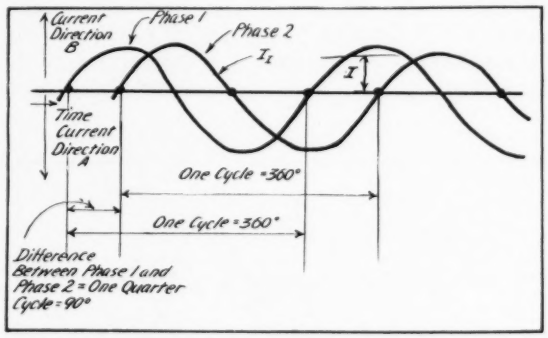

Fig. 7—Current flow in a two phase circuit

"Can they be used to counteract or cancel one another?"

"Yes. Most circuits, particularly those with the usual type of alternating current motor, have considerable inductance, which causes the current to lag. If a condenser of the right size is put on the line, the current can be speeded up enough to put it back in step with the voltage, thus increasing the power delivered to the maximum value.

"The simple circuit as described, using two wires, is known as a two wire, single phase circuit. Three wire single phase A. C. service is sometimes found, consisting of two live wires (usually the two outside wires) and one neutral wire (usually the center one). See Fig. 6.

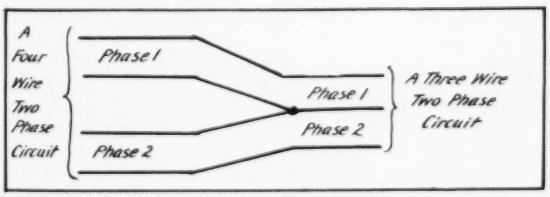

Fig. 8—How a two phase circuit is changed from a four wire to a three wire circuit

The voltage difference from the neutral wire to either one of the outside wires is 110 volts, while the voltage difference from one outside wire to the other outside wire is 220 volts. This is known as 110-220 volt, three wire, single phase service. The power companies supplying this service usually requires that all lighting loads,

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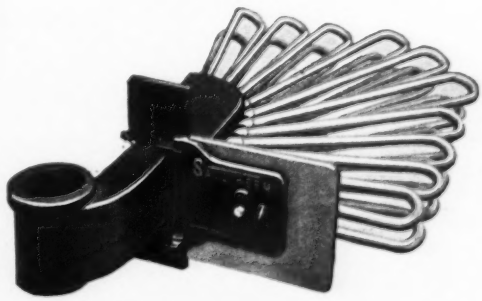

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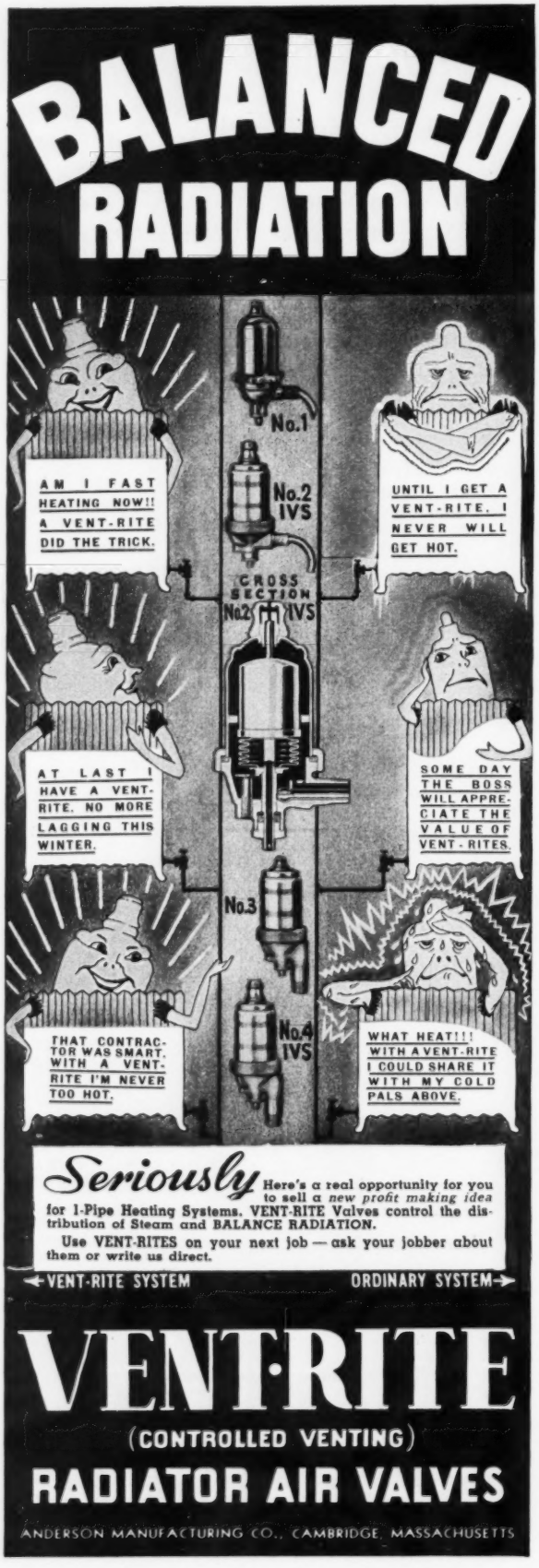
BALANCED
RADIATION
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CROSS SECTION No.2 IVS
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No.4 IVS
AM I FAST HEATING NOW!! A VENT-RITE DID THE TRICK.
UNTIL I GET A VENT-RITE. I NEVER WILL GET HOT.
AT LAST I HAVE A VENT-RITE. NO MORE LAGGING THIS WINTER.
SOME DAY THE BOSS WILL APPRECIATE THE VALUE OF VENT-RITES.
THAT CONTRACTOR WAS SMART. WITH A VENT-RITE I'M NEVER TOO HOT.
WHAT HEAT!!! WITH A VENT-RITE I COULD SHARE IT WITH MY COLD PALS ABOVE.
Seriously Here's a real opportunity for you to sell a new profit making idea for 1-Pipe Heating Systems. VENT-RITE Valves control the distribution of Steam and BALANCE RADIATION.
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VENT-RITE
(CONTROLLED VENTING)
RADIATOR AIR VALVES
ANDERSON MANUFACTURING CO., CAMBRIDGE, MASSACHUSETTS

etc., be taken off at 110 volts (from neutral to one outside wire) and that all power loads, such as motors, be taken off at 220 volts (from one outside wire to the other outside wire).

"If two sets of single phase circuits with two wires each are used and the current in one circuit is generated so that it leads the current in the other by ¼ of a cycle or 90 electrical degrees, the combination of the two represents a two phase, four wire circuit. The relation of the currents in the two circuits is shown in Fig. 7.

"If one wire from one phase, and one wire from the other phase are joined together for economy and convenience, a two phase, three wire circuit is obtained without changing the electrical performance of the combination. This is a very unusual service. See Fig. 8.

"If three sets of single phase circuits with two wires each are used and the currents in the three circuits are generated so that they are ⅓ of a cycle or 120 electrical

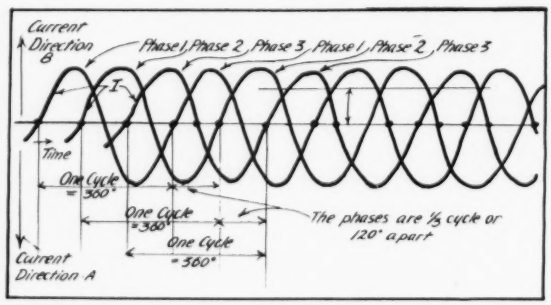
Current Direction
Phase 1 Phase 2 Phase 3 Phase 1 Phase 2 Phase 3
I
Time
One Cycle = 360°
One Cycle = 360°
One Cycle = 360°
The phases are ⅓ cycle or 120° apart
Current Direction A

Fig. 9—Current flow in a three phase circuit

degrees apart, the combination represents a three phase, six wire circuit. See Fig. 9. This arrangement requires too many leads to be practical but it could be used and would give exactly the same performance as the more common forms of three phase circuits. It is customary to combine the leads as shown in Fig. 10.

"The usual three phase, three wire system is the result of combining the six leads in either of these ways. The electrical characteristics of the circuit are not changed, generally speaking, by combining the leads in this way.

"To summarize, then, we will recall that: 1. A single phase circuit is a two wire system (except a three wire, single phase circuit, which is really two two-wire circuits combined) in which one current may be thought of as oscillating back and forth. (2) A two phase circuit is a three (unusual) or four wire combination in which two currents may be thought of as oscillating back and forth with one current 90 degrees ahead of the other. (3) A three phase circuit is a three wire system in which three currents are oscillating back and forth with the currents separated 120 electrical degrees from each other.

"The term polyphase, meaning more than one phase, is used to distinguish single phase from two or three phase circuits.

"As I explained before, a two phase circuit is merely two single phase circuits with the current in one single phase circuit 90 degrees ahead of the current in the other. Consequently, in the case of a four wire two phase cir-

cuit, single phase service can be readily obtained by using one of the single phase circuits as shown in Fig. 11. No load should ever be connected using one line of one phase and one line of the other phase.

"Single phase service can be obtained from any three phase, three wire circuit by connecting to any two of the three wires as shown in Fig. 12.

"Whenever single phase service is obtained from a polyphase circuit the voltage is always the same as that

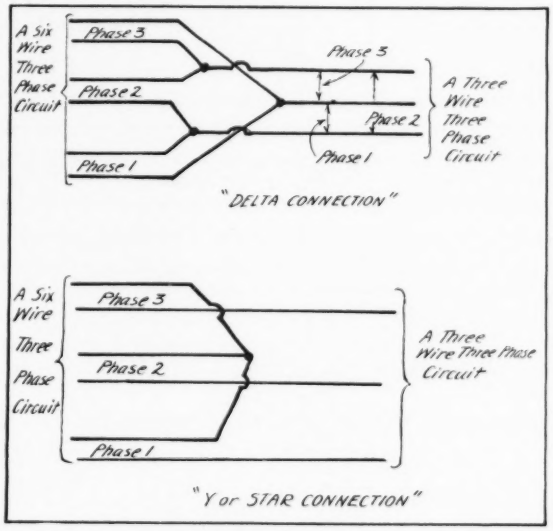

Fig. 10—Methods of converting a three phase circuit from a six wire to a three wire circuit

of the polyphase circuit. For example, if the voltage of the polyphase circuit is 220 volts, the single phase service obtained from it also will have a voltage of 220 volts.

"In direct current there are only three factors that affect the circuit: the voltage (E), the current (I) and

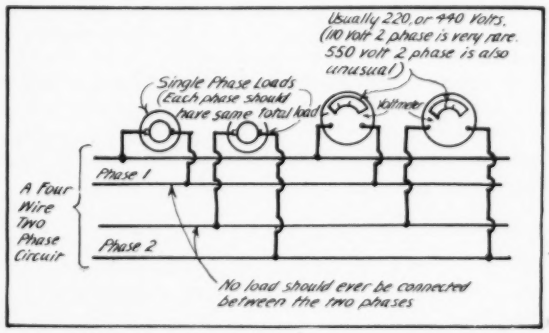
Usually 220 or 440 Volts. (110 volt 2 phase is very rare. 550 volt 2 phase is also unusual)
Single Phase Loads (Each phase should have same total load)
Voltmeter
A Four Wire Two Phase Circuit
Phase 1
Phase 2
No load should ever be connected between the two phases

Fig. 11—How to obtain single phase service from a four wire two phase circuit

the resistance (R). With direct current no other factors have any bearing on the circuit. The power is measured in watts (W) and is equal to E × I.

"In alternating current circuits other factors enter in. If a coil of wire is placed in an alternating current circuit, it will be found that this coil causes the current to lag

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Trustworthy because it is made of a non-rusting metal—copper.

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6 REASONS WHY G-E MOTORS WILL HELP YOU SELL OIL-BURNERS

1 **Fine Appearance** . . . Encased in a handsome, streamlined, glossy black frame, this motor makes a material addition to the appearance of any oil burner.

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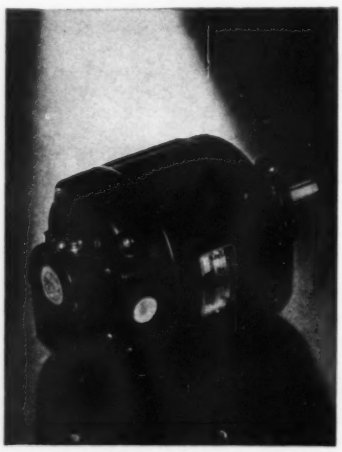
6 **Public Acceptance** of the name General Electric is established. G-E products have earned the confidence of the public through their continuously high standard of quality.



NRA WE DO OUR PART

Your selling job will be further simplified if you use also G-E transformers, cable, and other oil-burner accessories. Write General Electric, Dept. 6D-201, Schenectady, N. Y., for information.

070-31

GENERAL ELECTRIC

behind the voltage because the coil has inductance. The current and voltage are not in step, and the product of (E) and (I) (the apparent power) does not equal the true power in watts (W) as read by a wattmeter. This inductance is caused by the alternating magnetism around

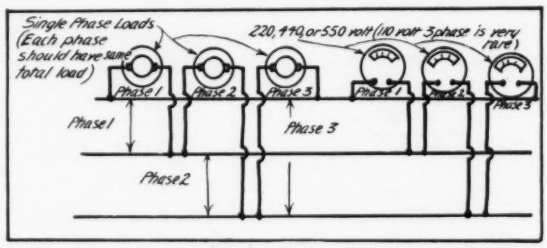


Fig. 12—How to obtain single phase service from a three wire three phase circuit

the coil which has a tendency to hold the current back and to make it lag behind the voltage. As previously explained, a condenser has just the opposite effect and will cause the current to lead the voltage.

"The ratio of the true power, as read by the wattmeter, to the product of (E) × (I) or the apparent power, is called the power factor. Thus, P. F. $= \frac{W}{E\,I}$ for any single phase circuit. The power factor is always 1 or less. It cannot be more than one.

(To be Continued)

National Power Show Will Feature Heating and Air Conditioning

The Eleventh National Exposition of Power and Mechanical Engineering takes place December 3 to 8 at Grand Central Palace, New York. Thus the Power Show—to call it by its most familiar name—will be held during the same week as the national mid-winter, annual meeting, also in New York, of the American Society of Mechanical Engineers. In addition to the well rounded and valuable program of technical papers which is scheduled for the meetings of the A. S. M. E., at the Engineering Societies Building, the Exposition will tell the story of modern progress in power.

Improved heating and air conditioning, representing a field of increasing industrial interest, will be the subject of numerous exhibits at this year's Power Show. The range of air conditioning and heating exhibits is being designed to interest those responsible for the heating or air conditioning of hotels, restaurants, factories, stores, offices, and churches. In the same department of the Exposition there will be direct-connected blowers with remote variable air control feature, spot coolers, humidity control systems, cooling towers, and dust separators. The fields which some of these exhibits will interest most valuably include power plant, mining, gas conditioning, chemical, and central station.

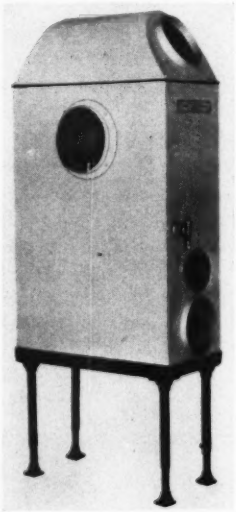
Among the members of the Advisory Committee on the Power Show are Charles V. Haynes and Homer Addams, president and past president, respectively, of the American Society of Heating and Ventilating Engineers.

Products FOR Dealers

This section gives a report of the latest news of selected automatic heat and air conditioning products. Sales helps such as these work to open up new and increasing markets for A. H. and A. C. Dealers.

An Automatic Humidifier for Homes

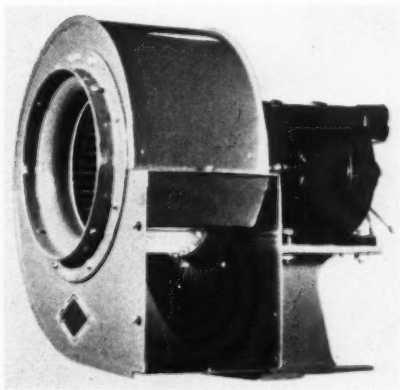
The equipment shown here has just been placed on the market as a basement unit designed for the humidification of the entire house in which it is installed. It is connected into the chimney of the heating equipment and operates to utilize the waste heat in flue gases. It is designed for use in connection with heating plants using oil burners. Duct work is installed to and from the humidifier so as to direct the flow of the air through the humidifier from the living portions of the house.



Additional features of this equipment consist of an electric fan for an increased air volume, an automatic control for the water spray and an automatic control for the humidity. The fan is installed in the cold air return close to the humidifier for forced circulation. The water spray control contains a solenoid valve which is controlled electrically so as to turn on the water spray when the oil burner starts and to turn it off when the burner stops. Where it is desired to check the relative humidity with a control device, placed in one of the living rooms, or to vary the relative humidity from time to time, a control set-up is provided. The humidostat is installed and set for the relative humidity desired. This then operates the solenoid valve and turns the water spray on or off as the moisture content of the air falls below or rises above the desired relative humidity indicated by the humidostat. United States Air Conditioning Corp., located at Minneapolis, Minn., is the manufacturer.

A Small Volume Low Pressure Blower

The blower illustrated here just recently has been placed on the market and is described as one of five sizes offered in a new series of equipment. It is available in different speeds. Free air capacities range from 180 c.f.m. to 2100 c.f.m. and the pressures range to 1½ in. of static pressure. The steel housing is press formed and is mounted on a cast iron base. The inlet flange is cast iron. The multi blade wheel is die cut and mounted directly on the shaft of the motor. The wheel is described as being balanced dynamically with the idea of insuring smooth and vibrationless operation. Motors can be supplied for any of the common commercial



voltages, A. C. or D. C., single or three phase. Shipping weights range from 45 lb. to 225 lb. These blowers have been made to be suitable for ventilation and drying jobs of many kinds. Ilg Electric Ventilating Co., 2850 N. Crawford Avenue, Chicago, Ill., is the manufacturer.

A Differential Humidity Control

The equipment illustrated here just recently has been announced as operating to govern the relative humidity at any desired differential between the inside relative humidity and the outside temperature. The idea is to

NEW—
Necessary—
and
Easy to Sell
The "K-CO"

Combination Boiler Drain
and
Pressure Relief Valves

Here's a "real" Combination Boiler Drain and Pressure Relief Valve. The "K-CO" is simple in operation, accurately designed and neatly made . . . Just the valve you have been looking for.
These Valves are factory-set and will relieve the pressure at the highest number (lbs.) marked on the bonnet dial. (The "indicator handle" points to the pounds pressure at which the valve will relieve.)
When it is desired to DRAIN the tank, the handle is merely turned "full open"—and when CLOSING, the handle may be returned to the desired pressure relief poundage. In other words, the "K-CO" offers SAFETY AND UTILITY COMBINED. What's more, the price is reasonable.

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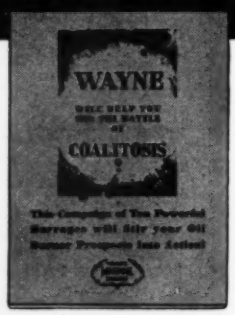
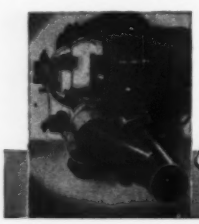
WAYNE MISTOIL BURNER

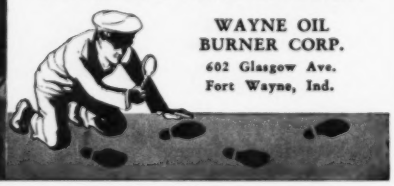


The Most Powerful Advertising and Selling Plan Ever Offered to Oil Burner Dealers

COALITOSIS is clicking! Wayne dealers who have seen this high powered combination of advertising and sales strategy hail it as the most unique and effective plan ever developed in the oil burner field. It's designed to help you make sales on the first and second call. It shocks your buyers into action. Find out about it now.

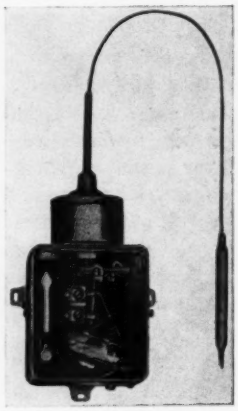
WAYNE
The World's Finest Oil Burner





WAYNE OIL BURNER CORP.
602 Glasgow Ave.
Fort Wayne, Ind.

take into account the variable factors in building construction such as insulation, single and double windows, storm sashes and the like. Two instruments are used. One is an outside temperature controller of the remote bulb type and this operates in conjunction with a humidity controller which governs the supply of moisture at the desired relative humidity in accordance with the setting of the controller. The normal functions of the

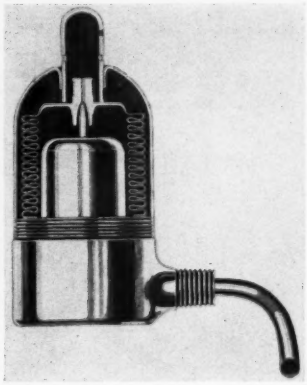


equipment are performed until the outside temperature begins to drop. As it drops, the remote bulb temperature controller, the bulb of which is outdoors, through its electrical connection with the humidity controller, acts as a limit control. In other words, as the outside temperature goes down, the temperature controller affects the operation of the humidity controller, thus causing it to call for less moisture and thereby preventing a condition of over-humidity with resultant condensate or frost on the windows and the outside walls. Minneapolis-Honeywell Regulator Co., of Minneapolis, Minn., is the manufacturer.

New Heat Regulator Announced

The accompanying illustration shows a new heat regulator which just recently has been announced. The par-

ticular model shown is made with a plain thermostat only. The motor is described as being quiet and as having ample power to lift the heaviest furnace dampers. This power unit operates at 16 volts supplied by a small power transformer adapted to the motor as shown. A cord and plug attachment are furnished as a part of the motor so that it may be connected to any convenient outlet. A switch is mounted on the motor so that the check can be closed while firing the heating plant or removing the ashes. The White Manufacturing Company, located at 2362 University Avenue, St. Paul, Minn., is the maker.

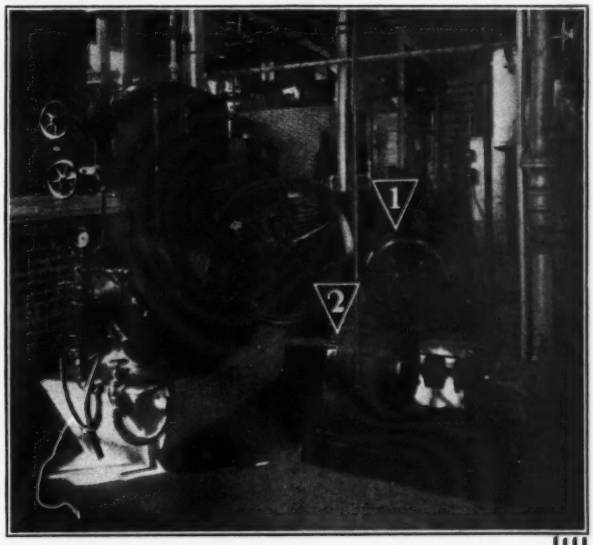


New Line of Bellows Vacuum Valves

In addition to including new features of a mechanical nature, this line of bellows vacuum valves just recently has been placed on the market with features worked out to assist in the merchandising of it. These valves are individually packed and then packed 12 to a carton in new containers. The valve itself has been designed to have quick venting and positive vacuum characteristics. They are for use with one pipe steam systems fired by coal, oil or gas. The shell of the valve is made of extra heavy hard drawn brass while the base is of brass cast in one piece and machined to glassy smoothness. The cap is machined from a hexagonal brass rod. The seating pin is described as being of non-corrosive nickel silver. When the system to which these valves are attached is allowed to cool down, these units operate to prevent cold air from rushing back into the radiators through the small venting holes. This sealing occurs as a result of the bellows being forced down by atmospheric pressure, onto the seating pin. Burnham Boiler Corporation, located at Irvington, New York, is the manufacturer.

Humidifier for Radiators

Here is a water feed valve which has been developed to have a double purpose in connection with hot water radiators. In the first place, it is designed as an automatic feed for supplying water to humidifying pans on hot water radiators. The idea here is that water vapor will be discharged into the air with this arrangement in proportion to the heat of the radiator. In other words,



1 *Century 60 HP, Type SCH Squirrel Cage Induction Motor, V-Belt Connected to Compressor*

2 *Century 5 HP, Type SC Squirrel Cage Induction Motor Direct Connected to Pump*

A Leading Part in Air Conditioning

Refrigerators...Compressors...Pumps...Fans...Blowers...Ventilators — in driving this and similar air-conditioning equipment Century Motors play a leading part. Many of them have been steadily on the job for more than 30 years — all of them set a conspicuous record in meeting the service requirements so essential in air-conditioning and refrigeration installations . . . Consult Century Engineers.

Single Phase...Polyphase...Direct Current...Single Speed, Multi-Speed—1/250 to 600 Horse Power.

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1806 Pine St., St. Louis, Mo.
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Century 60 Horse Power, 1200 r.p.m. 60 Cycle, 220/440 Volt, Squirrel Cage Induction Splash Proof Motor. Two-way Ventilation.

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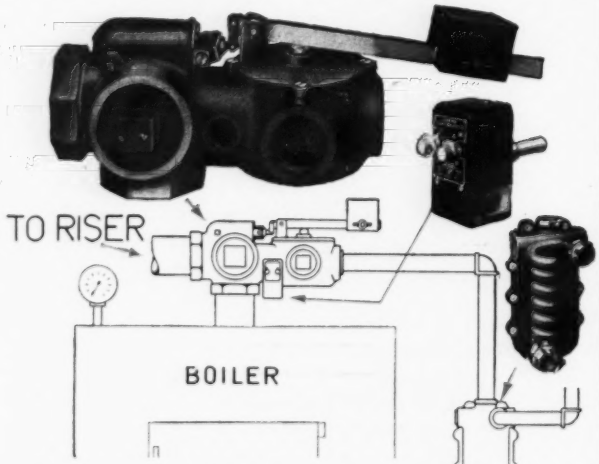
Century MOTORS

RADIATION TAP WATER

At Last!

BOTH HEATED BY THE HOT WATER BOILER AND BOTH PERFECTLY CONTROLLED BY THE NEW

GENERAL RISAVALVE



- An economical, efficient, adjustable control valve for hot water boilers which assures enough hot water and hot enough water for domestic use the year around.
- Absolutely noiseless in operation.
- Adjustable to needed volume and temperature of both radiation and tap water.
- No motors — no operating cost.
- Actually improves performance of House Heating System.
- Can be operated manually — no danger of sticking or leaking.

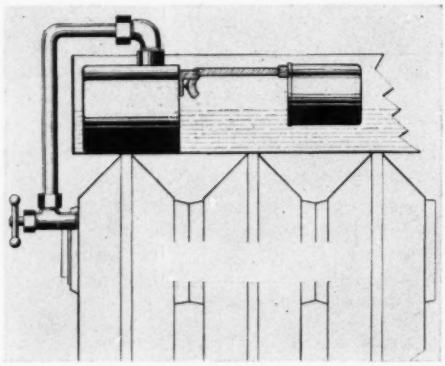
The new General Risavalve meets and solves every problem of indirect hot water control. It also overcomes every point of sales resistance including cost — it is the low cost method as well as the best. Get all the details of the General Franchise which gives you the outstanding 3-point combination in today's hot water heating picture. Write today for details of:

1 General Risavalve
2 General Duall Boilerstat
3 General Indirect Water Heaters

PRODUCTS OF

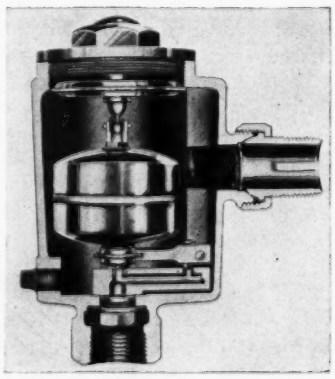
GENERAL FITTINGS CO.
100 BAKER ST. PROVIDENCE, R. I.

when there is more heat in the radiator, the water in the humidifier pan will be warmer and more rapid evaporation will take place. The second function of this equipment is to vent automatically, the air from the hot water radiator. With this arrangement, everytime the valve operates to admit water to the humidifier pan, it first emits any air which may have collected at the top of the radiator. This equipment also is applicable to pans which are hung at the back of radiators. Maid-O'-Mist, Inc., 43 E. Ohio Street, Chicago, Ill., is the manufacturer.



A Combination Float and Thermostatic Trap

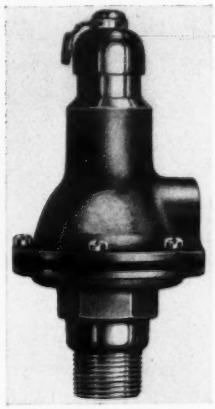
The trap illustrated here has been designed for the removal of air and condensate from short steam mains, branches, or risers. Also, its operating characteristics have been worked out so as to make it especially adapted to installations in connection with unit ventilators, small unit heaters or other equipment which may be subjected to freezing temperatures during periods when the heating system is not in operation. The outlet discharge valve is designed to be water sealed at all times and the air vent is located in the trap bonnet. The thermostatic element screws directly into the trap body. Normally, air is discharged through the port directly to the outlet connections of the trap. The brass removable strainer is installed in the outlet connection and can be removed by disconnecting the unit tail piece nut. The body of the trap is provided with one ¾ in. union nut and tail piece inlet connection and one ¾ in. tapped



outlet. This trap is made so that it may be suspended readily on the pipe itself with no other means of support required. All of the working parts have been made accessible through the removable trap bonnet. The interior parts are of bronze and monel metal with the exception of the float which is made of seamless copper tested for a working pressure of 25 lb. per sq. in. Jas. P. Marsh Corporation, located at 2073 Southport Avenue, Chicago, Ill., is the manufacturer.

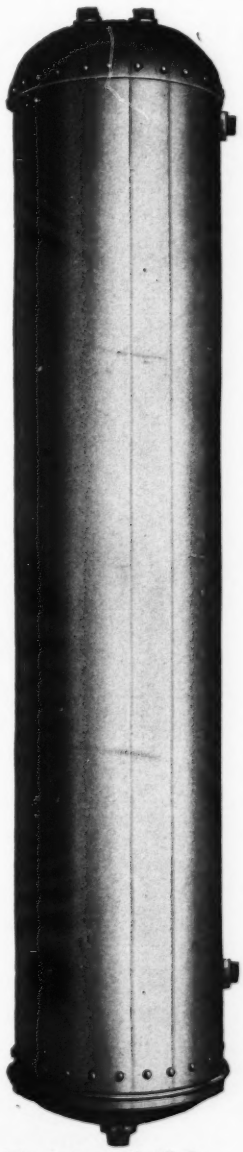
A Control Unit and a Relief Valve

The illustration at the left shows a new control unit which has been placed on the market just recently. It is designed to contain feeder, relief, back pressure, ball check and screen provisions in one complete unit. This valve is closed by internal pressure within the system except for a light spring which operates to keep the disc on the valve seat when there is no pressure. When there is no pressure in the system, there is no action on the



valve seat, the idea being to thus eliminate the sticking of the valve or a vulcanized valve disc. It is made to close fully by a drop of about 1 lb. from relief pressure. The full pressure of the system acts to close the valve which can be tested at any time with a downward push of the center pin. This pushes the valve from its seat which also operates to flush and clean the seat of any sediment. The feed valve and the screen are made so that they can be detached for cleaning without losing the water from the system. A check is included as a part of this valve to prevent syphoning which may occur as a result of a break in the supply line. These valves are constructed with what is described as a point relief. If the point of the center pin makes contact, the valve relieves, whereas if this contact is broken, the valve is closed. The valve seats are described as being as leakproof with a one lb. drop in pressure as with a 15 lb. drop. These valves are adjusted at the factory and sealed. The accompany illustration at the right shows a relief valve which is made on the same principle as the control unit already described. This valve when properly installed is set to relieve at a pressure of 28 lb. This relief valve necessitates manual filling of the system. The Beaton & Cadwell Mfg. Co., of New Britain, Conn., is the maker.

BETTER BOILERS
RUST PROOF
BETTER HOUSING PROGRAM



The improved All Copper G&C Boiler Riveted Top and Bottom and Reinforced to insure against collapse.

BY GERSTEIN & COOPER

GUARANTEED FOR 20 YEARS

STRONG, RUGGED BOILERS AMPLY REINFORCED.

MADE OF HEAVY COPPER THAT WILL LAST A LIFETIME.

Each day sees more and more jobs ready for G&C Guaranteed Boilers; new jobs, Modernization jobs and replacements of worn out, rusted-out boilers.

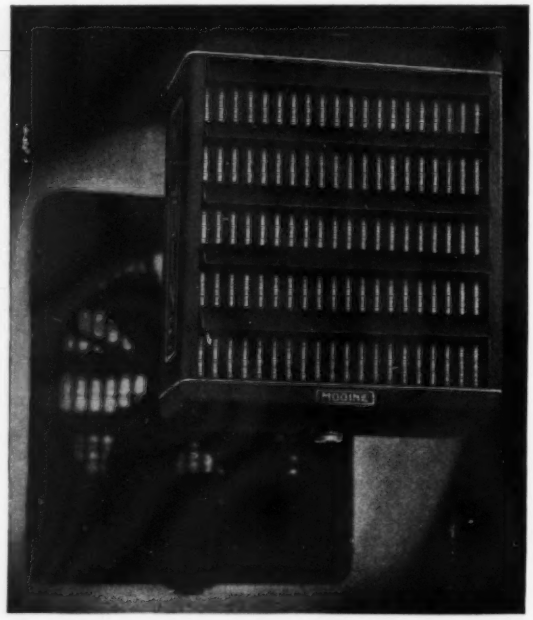
It's easier to sell all copper boilers today than ever before. The public knows the value of copper, its durability and freedom from rust and corrosion, and of course there is a good profit in the G&C boiler for you.

WHOLESALERS SEEKING A PROFITABLE LINE OF RANGE BOILERS SHOULD WRITE FOR TERRITORIAL FRANCHISE AND COMPLETE DETAILS.

G&C Copper boilers are stocked in 200, 250 and 350 pounds test pressure in standard sizes or are made to any size or pressure requirements on order.

GERSTEIN & COOPER CO.
South Boston, Massachusetts
Offices in New York and Baltimore
Representatives: Troop Water Heater Co., Pittsburgh; Edward Sinn, Harrison, N. J.; Strong, Carlisle & Hammond Co., Cleveland, Ohio.

FHA—YOUR OPPORTUNITY TO SELL MODINES



Among the specific types of equipment eligible for insured loans under the FHA Modernizing Credit Plan, heating equipment is one of the best sellers. The New Modine Unit Heater is the most modern development for commercial and industrial heating . . . giving better heating at the same, or even less fuel cost. Modine gives the heating contractor many selling advantages. It costs far less to install a Modine than any other unit heater. No brackets, pipe rods or straps are needed—Modine is suspended directly from the steam line. Material costs are less—and the installation is made in quicker time, and with less labor. This and other exclusively Modine mechanical superiorities explains why more Modines are sold than any other unit heater. Modernize with Modine—sell this idea and you'll make some real money.

MODINE MANUFACTURING COMPANY

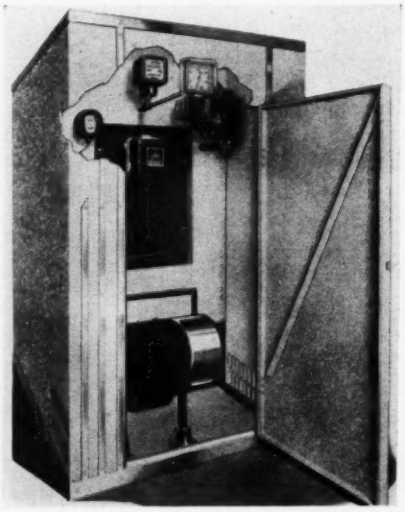
1760 Racine St., Racine, Wis.

The NEW MODINE UNIT HEATER

Write FOR FREE BOOK

Oil Burner and Boiler Combination

The oil burner and boiler combination shown here just recently has been placed on the market and is described as having a five-way flue travel. The first passage is from the oil burner nozzle to the rear of the boiler. There is no outlet there, however, and the gases are drawn back to the front of the boiler under the crown sheet. They pass under a secondary crown sheet to the rear, through 2 side flues to the front and finally through the center flue to the rear again. The castings have been made of



heavy cast iron for their heat retaining properties. Two in. of insulation consisting of eight plies is installed. In front of the boiler, there is an inspection door and the heat resisting glass in this door is protected from the flames by a machine fitted slide with the idea of preventing the glass becoming smudged. The top sections of the boiler are connected with 5 in. nipples to provide free water circulation. When desired, an internal domestic water heater can be furnished and installed in these nipple openings between the boiler sections in such a way that it is practically submerged in the water in the boiler. It is specified that this arrangement can be used both for winter and summer water heating. The jacket is finished in pearl gray enamel with chromium trimmings. It is available in 4 sizes designed to cover all domestic requirements. Auburn Burner Corporation, located at Auburn, Ind., is the manufacturer.

"Insulation for Air Conditioning" Told at S. F. Meet

The character and application of a variety of heat insulating materials were ably presented at the monthly luncheon meeting of the San Francisco Air Conditioning Society, held at Marquard's Cafe, November 8th. Clarke E. Wayland of Johns-Manville was the featured speaker.

Mr. Wayland first spoke of the low temperature materials, their characteristics and uses, such as kapok, hair

felt, etc.; then he dwelt on the most commonly used material in the medium temperature field, such as 85 per cent magnesia, whose limiting range is 550 degrees. In the high temperature field—up to 700 degrees—it was shown that the prevailing practice calls for combined layers of material such as asbestos sponge, which has the added advantage of withstanding hard treatment, such as having ladders leaned against it. In his reference to asbestos, the speaker took occasion to correct a mistaken idea, when he said, "One layer of asbestos paper over a hot pipe is worse than nothing at all."

In their application to air conditioning, Mr. Wayland spoke of the use of rock wool made in the shape of batts to fit between floor beams of 16-inch centers; likewise of blanket types of insulation made in rolls and easily built into structures.

The proprietor of Marquard's Cafe having inquired of the society's president, G. W. Nunn, as to cost and various recommendations in connection with certain changes in his establishment, including air conditioning, President Nunn named the following committee to cooperate with Mr. Marquard: Jared J. Hill of the Pacific Gas & Electric Co., chairman; D. J. Murphy of the American Gas Products Co., and H. L. Lincoln of the Union Ice Co.

May Oil Burner Corporation Starts "Sales Parade"

The May Oil Burner Corporation of Baltimore, Md., recently started an intensive fall campaign under the name of the "1934 Sales Parade." This campaign is arranged for the company's salesmen and distributors and it is yielding excellent results, according to Advertising Manager E. Lyell Gunts. The campaign will end December 4.

Big N. Y. Bank Makes FHA Loans to 1696 Borrowers

Information on its housing loans, made as a part of the national better housing program, was given out by the National City Bank of New York when its loans crossed the $1,000,000 mark. That amount had been loaned to 1696 borrowers, an average of $590 per loan. Of these, 513 early borrowers had made their first payments, no initial payment being past due. The loans were for an average period of 21 months and represented 4602 house modernizing jobs.

New Concern Enters Air Conditioning Field in Minneapolis

The Minneapolis Air Conditioner Company is the name of a company which was recently organized to manufacture and distribute an air-conditioning apparatus, the invention of L. E. Jordan. The company has opened offices and sales headquarters at 1609 Hennepin Avenue, Minneapolis, Minn. The officers of the company are : William H. Seymour, president; Charles C. Reif, vice-president, and Frank J. Jordan, secretary.

PROFITABLE PROGRESS

• Many EXCELSO Quality Indirect Water Heaters are being installed with modernization loans. We can aid you greatly in making Profitable Progress in this new channel of business . . . Write.

Excelso Products Corp.
57 CLYDE AVENUE BUFFALO, N. Y.

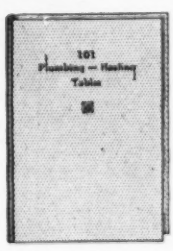
INDIRECT WATER HEATERS FOR ONE FAMILY OR ONE HUNDRED FAMILIES.

WE ARE COOPERATING BETTER • HOUSING • PROGRAM

for your trade library

TABLE OF ESTIMATED RADIATION

By Harry B. Perrigo. Gives you the radiation required for heating rooms of any size. There are two tables, one for steam, the other for hot water. All you need is the amount of glass surface, exposed wall, and cubical contents and you can instantly find the radiation required. It comes in a convenient pocket size, 4½x7. The tables are printed in two colors on heavy celluloid making 4 pages, substantially bound. Price postpaid $1.00.

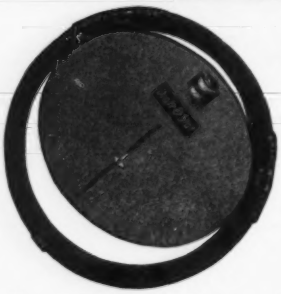


101 PLUMBING AND HEATING TABLES

This book contains as complete a set of working tables as has ever been published. It answers quickly and accurately, practically every kind of plumbing and heating question which could possibly be answered by a table, rule or chart. Is well indexed. Has 48 pages. Size 8x11, bound in cloth. Price postpaid $1.

DOMESTIC ENGINEERING CO.
Book Department
1900 PRAIRIE AVENUE, CHICAGO, ILLINOIS

DRAFT-O-STAT



SAVES *as much as* **25%**

On Oil, Gas or Coal Fuel Bills

Hotstream Indirect Heaters

Supply hot water at extremely low cost. Easily installed on any type of boiler. Also used for pre-heating fuel oil. A full line of sizes to meet every need.

Write for literature.

Because—it automatically controls chimney drafts, thus insuring maximum combustion efficiency, it is safe to say that 95% of all oil, gas and coal fired furnaces need Draft-O-Stat.

Practically every furnace and boiler owner is *your prospect.* Draft-O-Stat is easy to install. Gives you a generous profit. Write for descriptive literature.

Domestic types 6" to 20"
Industrial types 16" to 36"

Listed as standard by Underwriters' Laboratories.

THE HOTSTREAM HEATER CO.
"Makers of Heaters that Heat" CLEVELAND, OHIO

BARBER-COLMAN

A Step Ahead!

For house heat control, this item is a *step in advance* of anything of its kind. A new unit—the Variable-Limit Thermostat—supplements the Room Thermostat and acts on *changes* in temperature of the radiators (or ducts) rather than at fixed periods. The control compensates automatically for all changes of heat loss. "COMPENSATED CONTROL" will make good money for many reliable heating dealers this winter—don't miss it!

Actuated by TEMPERATURE... *not Time*

Send for Literature Today!

BARBER-COLMAN COMPANY
ROCKFORD, ILLINOIS

Sales Helps Offer Aid to Dealers—

New Bulletin Describes Equalizing Sytem for Steam and Vapor

Gorton Heating Corporation of Cranford, N. J., has just issued its bulletin No. 99, describing and illustrating its surevent equalizing system, which is designed to equalize steam and vapor heating systems where a thermostat is used to operate an oil burner, automatic stoker or gas-fired boiler, so that all radiators will heat up evenly and quickly and all rooms will be heated when the thermostat shuts off the fire.

White Manufacturing Company Issues Folder on Heat Regulators

The White Manufacturing Company of 2362 University Avenue, St. Paul, Minn., has just issued two folders describing and illustrating its heat regulators, including 8-day clock models, plain models, 8-day clock thermostats, plain thermostats, in various types. This company's complete regulator consists of one thermostat, one motor, one transformer, thirty feet cable, eighteen feet damper chain, four pulleys, insulated staples and mounting screws.

Bulletin About Forced Air Circulation and Filters

Air Controls, Inc., Division of the Cleveland Heater Company of Cleveland, Ohio, has issued a four-page bulletin, 8½x11 in., describing and illustrating its forced air circulation system. This bulletin is known as "Airings," No. 2, and it stresses the point that "clean air to breathe and live in means better health and greater comfort for the entire household. The use of forced air circulation permits the use of filters which thoroughly clean the air. These filters combined with the fans act very much like a large vacuum cleaner which circulates the air from the house through the filters every ten to fifteen minutes. Thus a home equipped with a proper forced air circulating system will be cleaner at the end of the season than it was at the beginning."

Booklets About Oxy-Acetylene Welding Includes "Do's and Dont's

The Linde Air Products Company of New York City has just issued two booklets about oxy-acetylene welding: "Precautions and Safe Practices in the Storage, Care and Handling of Oxy-Acetylene Welding and Cutting Equipment," and "Recommended Practices for the Use of the Oxy-Acetylene Process in Cutting Structural Steel." The former booklet has been prepared to provide a brief and practical list of "Do's and Dont's," so men may understand the precautions and care necessary to the safe and economical use of the oxy-acetylene process. The rules and recommendations included are the result of careful investigation and years of experience. The booklet on "Recommended Practices" contains qualification tests for the predetermination of good

workmanship from the standpoint of dimensional accuracy and smoothness of cuts. These tests apply only to hand blowpipes, and are for the present restricted to the plain low carbon steels. This booklet combines under one cover the material in current regulations as given in bulletins issued by various regulatory bodies. It will therefore be welcomed by engineers, contractors, supervisors and inspectors, as well as by operators of oxy-acetylene cutting equipment as a means of gauging and controlling the quality and safety of cutting operations.

"National Housing Act" Booklet Refers to Air Filtration and Insulation

The Industrial Materials Division of the Owens-Illinois Glass Company of Toledo, Ill., has just issued a 16-page booklet for use by the heating industry pointing out to consumers the benefits to be secured through the National Housing Act. This booklet explains by the question and answer method how the home owner can secure such financial aid as may be required for the immediate repair and remodeling of his property. Next follows an explanation of how the dust problem can be solved by the use of air filters. The booklet also discusses the important subject of house insulation and explains the value of the company's insulating wool.

Folder Describes Water Treatment for Heating Boilers

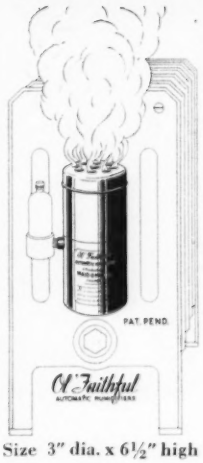
The Aquatic Chemical and Metallurgical Engineers of 118 East 28th Street, New York City, have issued a folder describing their water treatment for house heating boilers, which has been prepared for the purpose of maintaining the proper boiler water conditions. Three products are described: One for steam, coal or oil-fired cast iron boilers; another for steam, coal or oil-fired steel boilers, and the third product is for treatment for steam, gas-fired boilers. These treatments are said to eliminate oils, core sand, rust and scale, which retard steaming and steam circulation. By removing the causes of priming, these treatments result in easier steaming, quicker heating and longer life of the boiler.

"First Steps in Air Conditioning" Is Book Just Released

"First Steps in Air Conditioning," by A. J. Mellish, is the title of a book containing 19 simplified lessons in forced air heating and air conditioning, written in such non-technical language that it can easily be understood. To get an idea of the contents of the book, it is only necessary to cite the headings of the various lessons: 1. How Heat Is Measured. 2. Why Heating Is Necessary. 3. How Heat Escapes from a Room. 4. How to Determine How Much Heat Escapes from a Room. 5. How the Standard Code Was Developed by the Btu. Method. 6. Simplicity of Btu. Method Demonstrated. 7. Heating Requirements for a Room Calculated by Standard Code and Btu. Method. 8. Comparison of Standard and Btu. Methods of Calculating Heat Losses. 9. How Increasing Indoor Temperature Means Big Increases in Heating Costs. 10. How to Calculate Required Amount of Air to Carry Needed Heat to Rooms. 11. How to Calculate Pipe Area, Air per Hour, Ve-

NOW'S the TIME

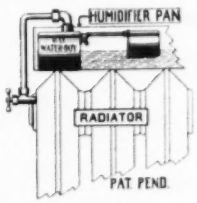
To SELL These Necessities



Size 3" dia. x 6½" high

50,000,000 steam and vapor radiators are now at work turning the air in homes, offices, printing shops, hospitals, factories, etc., into desert dryness. OL' FAITHFUL HUMIDIFIERS installed on these radiators will stop the destruction this dry heat is doing to health and furnishings. Your customers will thank you for the suggestion.

New Price ...after Jan. 1st....$8.50

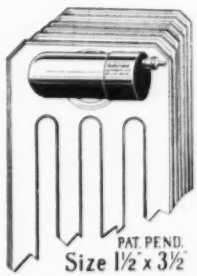


Size 1½"x3"
No. 53 Water-Boy

No. 53 WATER-BOY

Approximately 300,000 humidifying pans on hot water radiators are bone dry because they are too much trouble to keep filled with water. The No. 53 WATER-BOY will do this job for your customer and automatically keep the radiator free of air. Here is a lot of work for you this winter, Mr. Plumber.

New Price with fittings, less pan, $5.00

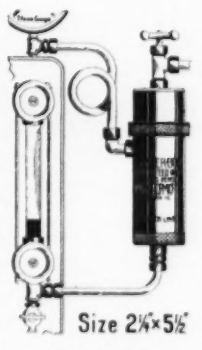


No. 200 Auto-Vent

No. 200 AUTO-VENT

More than 20,000,000 hot water radiators have hidden air brakes that retard their efficiency. These air pockets exist unbeknown to the owners. The No. 200 AUTO-VENT Air Valve will correct this fuel-waster situation by insuring perfect circulation in radiators, tanks or pipe lines.

New Price .. after Jan. 1st....$3.00



Pats. Pend.
No. 85 Water-Boy

No. 85 WATER-BOY

Size 2¼ x 5½"

There are several million owners of low pressure steam heating boilers and even a greater number of warm air furnaces that can't afford to be without the No. 85 WATER-BOY. It is an inexpensive watchman that remains on duty day and night.

New Price .. after Jan. 1st....$6.00

● ASK YOUR JOBBER ●

MAID-O'-MIST INC.

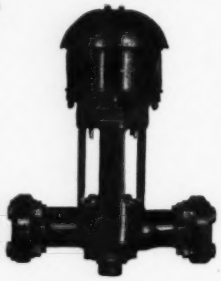
Wm. J. Woolley, Pres.

43 E. Ohio St., Chicago, Ill.

Manufacturers and Engineers of Electrical Apparatus for Special Applications

Janette

AUTOMATIC HEAT EQUIPMENT



HYDROLATOR — A forced circulation pump for hot water heating systems that brings the home quickly to a comfortable temperature. Overcomes difficulties with sluggish circulation. Lowers fuel costs.

COMBINED WHEEL AND COUPLING HUB—

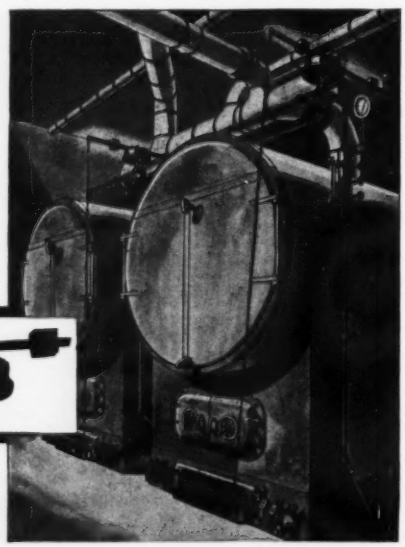
A new idea in wheel couplings. One side of coupling integral with wheel. Short connected. Inside edges of coupling rings extend out over pins to protect leather disc. Price comparable with wheel and cheap coupling. Send for full information.

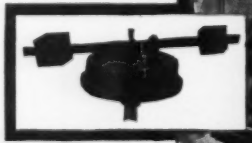
FLANGE TYPE MOTORS — TRANSFER PUMPS

Janette Manufacturing Company

559 W. MONROE ST. CHICAGO, ILL.

METAPHRAM





METAPHRAM
Type D2
for low pressure, vapor or vacuum — oil, coal or stoker fired.

METAPHRAM Gradual Control
covers the entire range of domestic hot water and low pressure boilers and tank heaters, either gas, oil or coal fired.

Descriptive Bulletins on Request

NATIONAL REGULATOR CO.
2317 KNOX AVENUE CHICAGO

locity, Etc. 12. Pressures and Resistance to Air Flow. 13. How to Use the Friction and Other Charts. 14. How Friction Chart Makes It Easy to Determine Pipe Sizes. 15. How to Calculate Total Resistance in a Heating Installation. 16. Humidity and How It Affects Comfort. 17. How to Read the Psychrometric Chart. 18. Further Facts on Humidity and Comfort. 19. Selecting Equipment. The book consists of 86 pages, 6¼ x 9¼ in., is bound in cloth, and costs $2 postpaid.

It is published by Edwin A. Scott Publishing Co., Inc., 45 West 45th Street, New York City.

Committee of Ten of Coal and Heating Industries Holds Annual Meeting

The annual meeting of the Committee of Ten of the Coal and Heating Industries was held at the Medinah Club, 505 North Michigan Avenue, Chicago, on Tuesday, November 27, and it was turned into an informal conference on present problems of interest to all solid fuel and related equipment people. Coal producers, wholesalers, retail merchants, related equipment manufacturers, and railroad representatives were in attendance.

Chairman John C. Cosgrove of Johnstown, Pa., reported on the activities of the Committee. Informal talks on plans and needs were made by representatives of the various member organizations.

Reports Big Increase in Sale of Oil Burning Space Heaters

Quaker Manufacturing Company of Chicago has already sold and shipped 2½ times as many oil burning space heaters this year as it sold in 1933, according to report issued under date of November 15. A. T. Atwill, president of the company, attributes this remarkable sales increase largely to the development of new territory and new markets for oil burning space heaters.

Link-Belt Co. Buys Modern Coal Burner Company

Link-Belt Company of Chicago has purchased the business and the manufacturing and sales rights of the Modern Coal Burner Company, a subsidiary of Peabody Coal Company of Chicago. The Modern Coal Burner Co's stokers will be added to Link-Belt Co's line of stokers. Both these companies have been manufacturing stokers since 1929.

Will Represent Maid-O'-Mist, Inc., in Greater New York Territory

Maid-O'-Mist, Inc., of 43 East Ohio Street, Chicago, has announced that H. M. Flemming Company, Inc., 30 Church Street, New York City, has been appointed its representative in the Metropolitan New York territory.

Other representatives recently appointed are: J. M. MacCrea, 153 Oakland Street, Syracuse, N. Y., who will cover the northeastern part of the State of New York, and Charles Sockwell, Jr., 8 Linden Avenue, N. E., Atlanta, Ga., who will cover Alabama territory.

Business Personals—

J. L. BLACKSHAW, formerly connected with the Research Laboratory of the American Society of Heating and Ventilating Engineers, at Pittsburgh, Pa., has become associated with the building products division of the Reynolds Metals Company in New York City. In his new position he will assist this concern's sales force on heating, air conditioning and ventilating problems as they apply to insulation.

H. J. NELSON, treasurer of Quaker Manufacturing Company of Chicago, won the first prize in a contest for the best home playground, which the Chicago Motor Club has been conducting in the northwest section of Chicago and Cook County.

H. H. DOBBERTEEN has been appointed assistant advertising manager for the Leonard Refrigerator Company of Detroit, Mich., according to announcement issued by Sam C. Mitchell, advertising manager of this company. Mr. Dobberteen has specialized in the advertising and merchandising of electric refrigerators for several years. During the past year he has been connected with the Kelvinator Corporation.

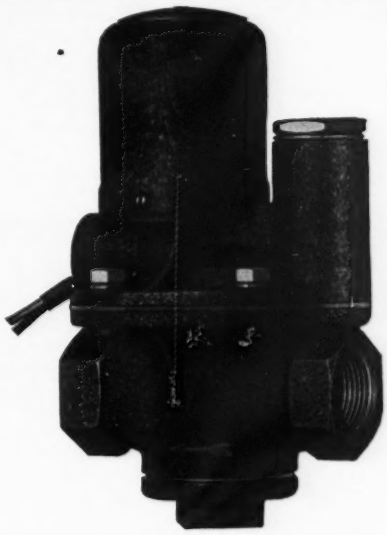
W. V. EMERY, for the past ten years connected with the Harnischfeger Corporation of Milwaukee, Wis., has just been transferred to this concern's office in Detroit, Mich., and placed in charge of arc welder sales for that area.

JOHN G. ZUMMACH has joined the staff of the Hexcel Radiator Company of Racine, Wis., as chief engineer in charge of the commercial and air conditioning branch of the business. Mr. Zummach returns to the same plant after an absence of 13 years, and he is again associated with Fred M. Opitz, who was at the head of the original Perfex Radiator Company, and who is now president and general manager of the Hexcel Radiator Company.

ROBERT J. WORKING has been appointed district sales manager in Cincinnati for Republic Steel Corporation of Youngstown, Ohio, according to announcement issued by N. J. Clarke, vice president in charge of sales. Mr. Working succeeds W. A. Peck as head of the Cincinnati office. He has been Mr. Peck's assistant since 1930.

PARKE H. HOLTON, formerly vice president in charge of sales of Evins F. Glore & Son, Inc., New York City, has joined the Davis Engineering Corporation, manufacturers of indirect water heaters and fuel oil heaters at Elizabeth, N. J. Mr. Holton was connected with the Glore concern for the past nine years, and prior to that he was associated with the Advance Boiler Corporation of New York City and the Abram Cox Company of Philadelphia.

W. M. DEWITT has been appointed manager of the domestic advertising and sales promotion department of the Kelvinator Corporation of Detroit, Mich., according to announcement issued by Vance C. Woodcox, advertising director. Mr. DeWitt has been active in electrical appliance merchandising in the South and the East since 1925 and has been a district manager for the Kelvinator



A NEW WATER VALVE

Model 66. Based upon the by-pass principle. Low power consumption—extremely fast and accurate action. Construction of brass and non-ferrous material. Write for Bulletin No. 406.

AUTOMATIC PRODUCTS CO.
121 N. Broadway Milwaukee, Wis.

The Ohio Brass Company
Mansfield Ohio

More than a quarter million Mercoid pressure controls equipped with Bourdon tubes and Mercoid Switches have and are proving their reliability with years of unfailing performance.

NOW

a new instrument is made available, employing the Bourdon tube and Mercoid Switch with added features long desired by our trade, namely, external independent adjustment with high and low setting, each directly indicated on calibrated dial. A glance shows the pressure at which the instrument will open or close the circuit.

Sealing or locking means provided as standard to prevent tampering.

Immediately available for shipment in 10" vac. to 12 lb. pressure with minimum operating differential of one pound.

Additional ranges will be available in immediate future.

Mercoid Controls Are Also Distributed and Stocked in Many Cities By The Graybar Electric Co., Inc.

THE MERCOID CORPORATION

Sole Manufacturers of The Mercoid Switch

4221 Belmont Avenue • Chicago, Illinois

MS-V

The Nu-Way MS-V Model "Genii" is low in price and meets all competitive markets.

The Nu-Way MS-V Model "Genii" has a capacity of 200 to 1200 feet of steam. It is attractive in appearance and carries the nationally accepted Nu-Way "Genii" name for quality.

The Nu-Way Corp. also has a complete line of automatic oil burners, hot water heaters and boiler heating units.

Write for more information. A franchise with Nu-Way is a franchise of value.

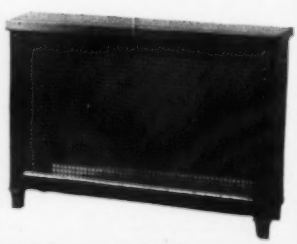
NU-WAY "Genii" automatic oil burner Model MS-V

The NU-WAY CORPORATION

ROCK ISLAND • • ILLINOIS

NEW MODELS NEW PROFITS

SLYKER now offers . . . exclusively to the trade . . . *old* quality, *new* designs, *lower* prices and *liberal* discounts. Write for details today and take advantage of the increasing demand.



SLYKER

GARY INDIANA

Corporation since 1930, directing sales operations in Indiana, Kentucky, and Southern Ohio from 1930 to 1932, and in Florida, Alabama, Mississippi and Georgia from 1932 up to the present time.

Submits Simplified Practice Recommendation for Firebox Heating Boilers

A proposed simplified practice recommendation covering steel horizontal firebox heating boilers has been mailed to all interests in the industry by the division of simplified practice of the National Bureau of Standards for their consideration and written approval.

This recommendation, which was approved at a general conference held in Cleveland, Ohio, June 5, 1934, lists 19 sizes of boilers ranging from 1,800 to 35,000 sq. ft. of steam radiation and from 2,880 to 56,000 sq. ft. of water radiation for hand firing. Nineteen ratings are also given for these boilers mechanically fired ranging from 2,190 to 42,500 sq. ft. of steam radiation and from 3,500 to 68,00 sq. ft. of water radiation. The recommendation also includes heating surface and grate area for each size of boiler. Other information includes furnace volume for oil, gas fired, or bituminous coal stoker fired boilers, together with size of outlets and number and size of safety valves.

The recommendation, if approved by the industry, will be issued as simplified practice recommendation R157 and will be effective from July 1, 1935.

Auxiliary Heater for Solar System Planned by Brooks

Solar water heaters furnish hot water in thousands of farm and other homes in California, but on cloudy or rainy days there is no hot water. Recognizing this problem, Dr. F. A. Brooks, associate professor of agricultural engineering in the University of California, at the Branch of the College of Agriculture at Davis, Calif., is devising an electric heater in series with a solar heater, to work only when the sun is not on the job. An electric thermostat will regulate the activity of the auxiliary unit.

Dr. Brooks will study carefully the record of temperatures he plans to make, so that he may make definite recommendations as to installation in other homes.

Service—

(Continued from Page 65)

thorized person tampering with the water valve during the winter and accidentally admitting water to the condenser.

The electric power and control circuits to the condensing unit should be opened to prevent accidentally starting the unit during the winter. Usually this can be accomplished effectively by removing the fuse from the safety switch, and tagging the safety switch calling attention to the fact that the circuits are disconnected and should remain disconnected until it is desired to start the apparatus again. In clearing the electrical circuits to the unit, the service man should make sure that he does not also interrupt the power circuit to the

fans in the air conditioning unit or the control circuits for the humidifier or heating equipment if the air conditioning unit is to be used for winter operation.

All unpainted iron or steel surfaces of the condensing unit, such as couplings, shafts, and other bright parts, should be wiped with an oily cloth to provide a thin film of protecting oil to prevent rusting during the winter.

A cover of heavy paper, muslin, or similar material should be placed over the condensing unit and securely tied into place. This cover will keep the unit clean and free from dust or dirt.

A tag should be tied to the condensing unit, telling the owner that this unit has been shut down for the winter. The tag should show the firm name, address and telephone number, to facilitate calling a service man to put this unit back in service and to adjust it properly for the cooling season next year. The tag also should caution the owner against trying to operate this unit until it is again placed in service properly by a competent service man.

If air conditioning owners and dealers will follow these suggestions, it will greatly increase the chance of enjoying trouble-free performance from this air conditioning apparatus.

Alt—

(Continued from Page 75)

Amount of moisture picked up by each pound of air is
183,750 gr. / 31,034 lb., or 5.9 gr. (plus)

Absolute humidity desired in room at 80 deg. Fahr. and 50 per cent relative humidity
155.8 gr. sat. × 50 per cent or 78 gr.

Absolute humidity of air entering room
78 gr. — 5.9 gr. added or 72.1 gr.

This corresponds to a saturated temperature leaving the air washer of about 58 deg. Fahr.

Dehumidifying Load

The outside air supplied must be cooled down from the outside temperature of 95 deg. Fahr. to the temperature leaving the washer of 58 deg. Fahr. at which time the absolute humidity of the outside air cannot exceed 72.1 gr., and, as the number of grains in the outside air when it comes in is (with 95 deg. Fahr. and 50 per cent relative humidity outside)

256.3 × 50 per cent or 128.1 gr.,

and the amount of moisture which must be removed is
128.1 gr. minus 72.1 gr. or 56 gr. per lb.

The inside air will require to have removed from it all of the moisture added in the room or 5.9 gr., per pound but only 75 per cent of the room air comes back in the form of recirculation which, added to the 25 per cent of outside air makes the 100 per cent total.

The total number of pounds of moisture removed from the air in the washer is for the outside air

$$25 \text{ per cent of } 31{,}034 \text{ lb.} \times \frac{56.0 \text{ gr.}}{7{,}000} \text{ or } 62.0 \text{ lb.}$$

and from the recirculated air

$$75 \text{ per cent or } 31{,}034 \text{ lb.} \times \frac{5.9 \text{ gr.}}{7{,}000} \text{ or } 19.6 \text{ lb.}$$

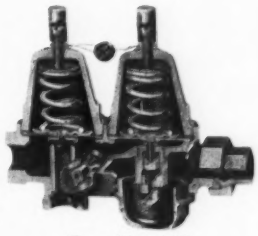
BETTER CASH-ACME VALVES

time proven pressure controls for hot water heating systems

Profitable and Satisfactory to both PLUMBER and USER!

CASH-ACME FEATURES:

1. By-Pass for quick filling and testing.
2. Built in Union for quick and easy installation.
3. Bronze Nickel Chrome Relief Valve seat avoids sticking.
4. Improved Composition Regulator Seat assures tight closing.
5. Correct Design avoids chatter.



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If your Jobber cannot supply you write for Bulletin D1

A. W. Cash Valve Mfg. Corporation
600 NORTH WATER STREET
DECATUR, ILLINOIS

YOUR COPY IS READY!

THE LAST WORD ON DOMESTIC WATER HEATING SYSTEMS

Bell and Gossett's new loose-leaf catalog brings you the latest engineering achievements in low-cost domestic water heating and automatic hot water circulation controls

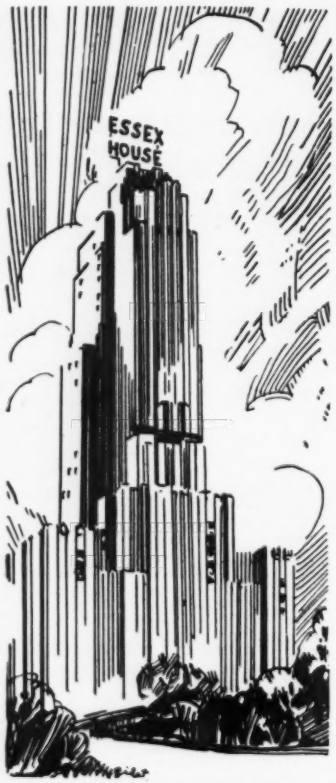
The most complete source of information of its kind ever published! 50 pages of installation diagrams, water heater capacity charts, piping layouts and fully detailed information on the new Bell & Gossett line of Indirect Water Heating Systems, Booster Pumps, Flow Controls and allied Heating Specialties. Every Plumbing and Heating Contractor on the alert for equipment which can be easily sold on a money-saving basis should have a copy of the new B & G Catalog.

SEND THIS COUPON TODAY

Bell & Gossett Co., Dept E, 3000 Wallace St., Chicago
Send at once your new 50-page Catalog.

Name.....

Address.....



Visitors to New York Please Note:

Come to ESSEX HOUSE.
The location is central.
The view is magnificent.
The rates are reasonable.
The service is residential.
The difference is worth-while.

Dine and dance to the music of Glen Gray and the Casa Loma Orchestra playing nightly in the Colonnades. Broadcasting over the Columbia System.

ESSEX HOUSE
160 CENTRAL PARK SOUTH
Albert Auwaerter, MANAGER

which makes the refrigeration load for the outside air
62.0 lb. × 1,000 Btu. / 12,000 Btu. or 5.17 tons
and for the recirculation air
19.6 lb. × 1,000 Btu. / 12,000 Btu. or 1.63 tons.

Cooling Load

The cooling load is calculated in a similar manner except that it is based on the temperature reduction and that 0.24 is used as the specific heat for a pound of air.

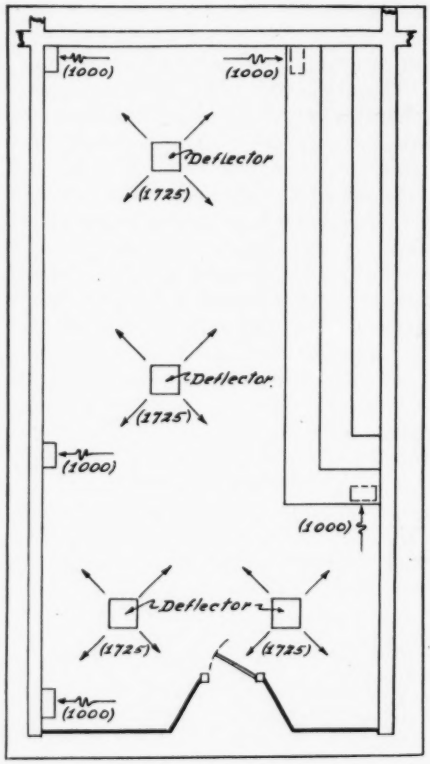


Fig. 3—This drawing indicates the method followed in designing the air condition installation

Thus where the outside air is reduced from 95 deg. Fahr. down to the air washer temperature of 58 deg. Fahr. the number of Btu. removed will be
25 per cent of 31,034 lb. × (95 deg. Fahr. minus 58 deg. Fahr.) × 0.24 or 68,895 Btu.
while for the recirculated air the Btu. removed is
75 per cent of 31,034 lb. × (80 deg. Fahr. minus 58 deg. Fahr.) × 0.24 or 122,894 Btu.
The refrigeration load for outside air then is
68,895 Btu. / 12,000 Btu. or 5.74 tons
and for the recirculated air
122,894 Btu. / 12,000 Btu. or 10.24 tons.

Refrigeration Load

Total refrigeration load will be seen to consist of the refrigeration required to dehumidify the outside air and the recirculation air combined with the refrigeration required to cool the outside air and the inside air; thus,

Dehumid. Outside Air..... 5.17 tons
Dehumid. Recirc. Air..... 1.63 tons

Cooling Outside Air..... 5.74 tons
Cooling Recirc. Air.....10.24 tons

Total Refrigeration Load....22.78 tons

The system may now be incorporated in the restaurant by dividing the air among four ceiling outlets each of which will supply 6,900 c.f.m. / 4 or 1,725 c.f.m., and the exhaust taken back from outlets under the counter and along the opposite wall each outlet having a capacity of about 1,000 c.f.m., and the total of all recirculation outlets being about 75 per cent of 6,900 c.f.m., or 5,175 c.f.m. This is illustrated in Fig. 3 with the idea that the apparatus will be set in the basement and that a small central system will be used. The calculations for this installation are given in great detail to explain each step and in the calculations used in later installments of this series of articles many of the individual steps will be combined to shorten the work after the principles are clearly understood from the foregoing.

Oil Exhibits—

(Continued from Page 60)

advertising permitted outside of a note in small type on the front cover stating that "Home Ideas" is published jointly by the firms mentioned. This publication is about 8 in. by 10 in. in size.

The co-operation, however, goes farther than the simple distribution of the cost of printing the pamphlet, for each of the firms associated makes it a point to swing any business that they may come across in their travels to their associates with the associates doing the same to them. For example: there are few houses that the plumber and steam fitter can go into without finding that there is some painting or renovating needed which, in case they have no regular painter that they always employ, it may be suggested that the associate painter and decorator be allowed to do. Similarly, when the painter and decorator finds a house needing a new boiler, immediately he suggests that Kleinhans, Inc., be called in to do the job.

Outside of this monthly publication, Kleinhans, Inc., recently sent out invitations to 250 Master Plumbers in the state of New Jersey to come and see their exhibit of oil burners at the "Own Your Home Show" and a much larger number of smaller invitations to prospects.

GORTON EQUALIZING EQUIPMENT
makes all radiators heat up
EVENLY AND QUICKLY

★ Provide your customers with Equalizing Equipment *at low cost* which *automatically* makes all radiators heat up *evenly* and *quickly* and at the same time lowers the operating pressure. This means greater efficiency, lower fuel costs and a *satisfied customer.*

Gorton Equalizing Equipment *eliminates cold rooms* and can be used on any steam or vapor system. On the basis of past experience it is recommended and used by leading manufacturers and dealers of automatic heating equipment.

We would like to tell you about the Gorton Surevent Equalizing System and how it will solve problems and develop profitable business for you. Write us today for our Equalizing Bulletin No. 99 and trade prices—Without obligation.

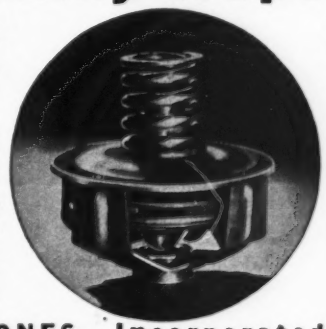
GORTON HEATING CORPORATION
Since 1887 Manufacturers of Heating Equipment
CRANFORD NEW JERSEY

For 1935 Profits
Investigate
Master Kraft
OIL BURNERS
A Size for Every Size of Home
HARVEY-WHIPPLE, Inc.
1257 Emery Street Springfield, Mass.

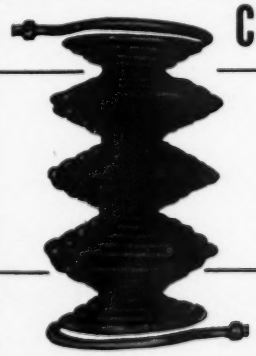
cures balky traps

This B. & J. cage unit restores old thermostatic traps to new-trap performance — AT HALF THE USUAL COST AND TROUBLE.

No special tools . . . no parts to be sent back to the factory . . . no skilled labor! Simply lift out the old thermostatic unit, drop in the new B. & J. cage unit, and the job is done. The units are self-contained and locked in adjustment. They are available for practically any trap. Write for bulletin.



BARNES & JONES, Incorporated
503 BROOKSIDE AVE. BOSTON, MASS.



COPPER COILS
for all makes of Instantaneous Water Heaters
"Coils That Are Really Guaranteed"
Catalogue Price List Mailed on Application
Also Mfrs. Water Motors
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Gas BOILERS
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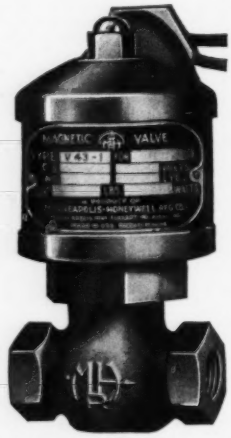
"Let the pup be Furnace Man...and Weatherman, too"
THE BRYANT HEATER CO.
17946 St. Clair Ave. Cleveland, Ohio
SALES-ENGINEERS IN 40 PRINCIPAL CITIES

AIR CONDITIONING CONTROLS

for

Domestic or Commercial Installations



Magnetic Shutoff Valve. Silent Solenoid valve with replacement seat and plunger. Especially designed for domestic air washers.

MINNEAPOLIS-HONEYWELL Air Conditioning Controls govern all phases of this work, including heating, cooling, ventilating, humidifying or dehumidifying. There are controls for every application, each designed to accomplish its particular function with characteristic Minneapolis-Honeywell accuracy and efficiency. Minneapolis-Honeywell Regulator Company, 2801 Fourth Avenue South, Minneapolis, Minn. Branch and distributing offices in all principal cities.

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Control Systems

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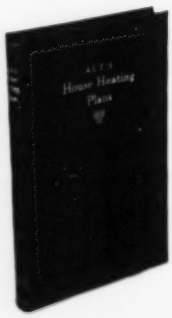
AIR CONDITIONING SIMPLIFIED

A new book which gives a step by step story of air conditioning, what it is, how it works, what it does, how to install it, how it is sold. The book is written in three complete parts from the pens of the leading authorities in the industry and edited by Harold L. Alt, heating engineer. The first part is on theory, the second part on the application of the theory and the third part on getting air conditioning business 216 pages; 5½x8¼, bound in cloth — price postpaid $1.00.

ALT'S HOUSE HEATING PLANS



By Harold L. Alt. Will give the heating contractor the very latest information for use in designing and installing heating systems for bungalows, residences, garages and combination store and apartment buildings. All of the smaller type of structures. It includes design for all of the various boiler and radiator systems, data on accessories and gives full and complete layouts. Progress within recent years in the design and manufacture of heating equipment has been so great that small structural heating system installations present entirely new and different problems. These are solved in this book. 208 pages, 5½x8¼, bound in cloth, price postpaid $1.00.

Book Department

Domestic Engineering, 1900 Prairie Ave., Chicago, Ill.

Silent Glow Reports Record Power Burner Sales

Silent Glow Oil Burner Corporation, Hartford, Conn., has just completed a series of meetings with distributors and dealers at the following points: Boston, Mass.; Utica, N. Y.; Troy, N. Y.; Great Barrington, Mass.; Hartford, Conn.; Pittsfield, Mass.; Worcester, Mass.; Lewistown, Maine.

At these meetings the company's complete line of oil burners was outlined and the new models of pressure atomizing burners were demonstrated and described. R. M. Sherman, president, and E. M. Pattison, vice president, attended all meetings.

Silent Glow officers report that October showed the largest volume of power burner business the company has experienced in its history.

H. P. Henderson of Buffalo, N. Y., has organized the Silent Glow Sales Co., 53 Taunton Place. He is taking over the distribution of Silent Glow products for western New York.

Air Conditioner Pays for Self First Time It's Used

An electric air conditioner installed in the tomato ripening room of the Morris Fruit and Produce Company, Minneapolis, saved its purchase price the first time it was used by preventing spoilage that usually occurred under ordinary atmospheric conditions. The room holds two carloads of tomatoes, and before the adoption of air conditioning as high as 20 per cent of each lot dried out and spoiled. Attempts to overcome this by periodic sprinkling were not successful, because only the top layers received enough moisture. The air conditioner supplied the correct combination of temperature and humidity.

Wm. Degenhart, Buffalo Contractor Dies in His 73rd Year

William Degenhart, a ventilating contractor in Buffalo, N. Y., died at his home in that city on Monday, November 19, in his 73rd year. He retired from business in 1931. As president of Degenhart & Co., he directed the installation of ventilating systems in many of the hotels in Buffalo and in scores of industrial plants in Western New York. His wife, three sons and a daughter survive him.

Salt Lake City Heating Contractors Form Organization

George M. Whitely, Salt Lake City, Utah, plumbing and heating contractor, was elected president of the Salt Lake City Association of Piping, Heating and Ventilating Contractors, a newly formed organization. A. H. Walsh is vice president and Frank Aldous secretary-treasurer. The association has fourteen members at present, according to Mr. Whitely. An active membership campaign is being started. It is anticipated that the organization will become affiliated with the Heating, Piping and Air Conditioning Contractors National Association.

KAINER

GOVERNORS

for **HOT WATER HEATING SYSTEMS**

PERFORMANCE—
is the thing that has ESTABLISHED KAINER GOVERNORS in the heating field.

JOBBERS, CONTRACTORS, and CONSUMERS recognize not only this "PERFORMANCE RECORD", but also the SATISFACTION resulting from KAINER GOVERNOR SALES—INSTALLATIONS and OWNERSHIP.

Write for Literature Today!

Handled by Recognized Jobbers!

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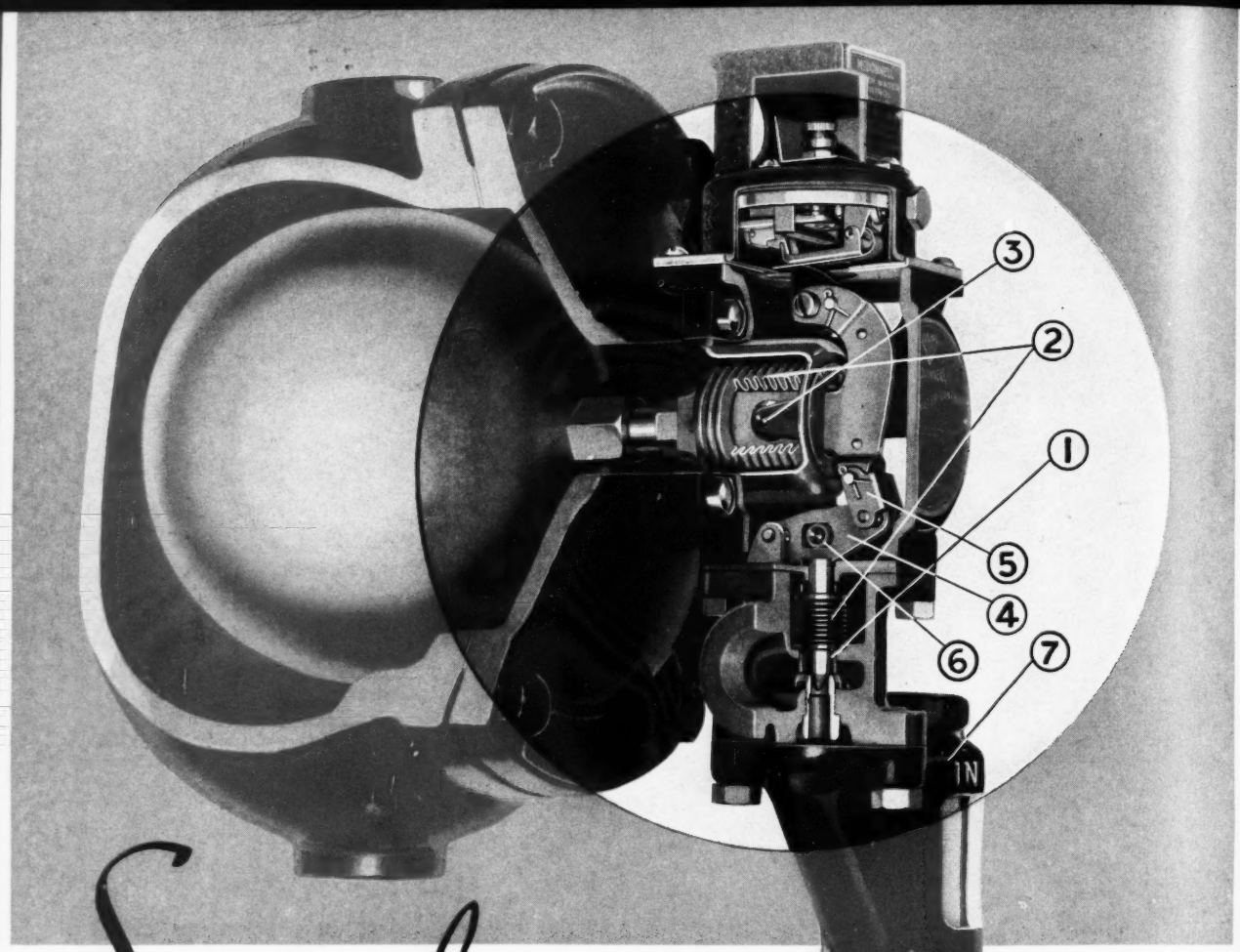
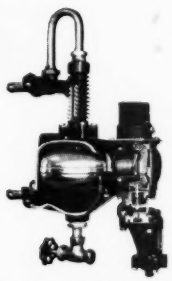


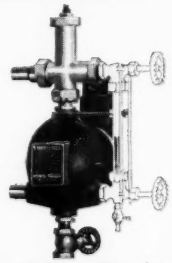
So much MORE

Yes, so *much* more—and yet the price is little if any higher than that of any equipment that you could even think of entrusting with the vital job of protecting a heating plant. Just glance at the working unit of the No. 51-2 Combined Safety Feeder and Low Water Cut-Off—and see how true that is:

- **The feed valve (1) is totally isolated from the heat of the float chamber. Water surrounding it can never reach the critical temperature at which lime and scale forms, and therefore sticking of the feed valve—the most common source of feeder trouble—is prevented. This cool feed valve feature is covered by our patent No. 1,934,486. Water is fed independently of the float chamber—not into it. The valve and seat are stainless steel—not the short lived composition-disc type that so often causes trouble.**
- **The valve toggle compartment is sealed away from the float chamber and feed valve by two sylphon bellows (2). This feature does away with stuffing boxes, packing, and the leakage and friction that packing causes.**
- **The new valve toggle gives multiplied valve closing power through the linkage (5). Note that the main lever is pivoted at a point (3) which is in the center of the large sylphon bellows. This prevents undue distortion of the bellows.**
- **The cam (4) and roller effect (6) assures a straight thrust on the feed valve instead of the usual off-center thrust—a vital refinement.**
- **The large solderless strainer (7) is mounted in place at the factory ahead of the valve. It is therefore impossible for pipe dope or cuttings to reach the valve as it so often does when strainers are installed separately on the job. Strainer is mounted in a flange for quick, easy removal.**



No. 47-2. In addition to the basic features described opposite, the No. 47-2, for boilers under 5,000 square feet capacity, has the quick-hook-up feature illustrated above.



No. 60-B Low Water Cut-off with quick-hook-up feature. Also furnished without quick-hook-up feature for installation with 1-inch equalizing pipe.

These basic features are found in both the No. 51-2 (illustrated above) for use on automatically fired boilers above 5,000 square feet capacity, and in the No. 47-2 for boilers under 5,000 square feet capacity. Ask for complete information, prices, and installation data.

McDONNELL & MILLER, 1306 Wrigley Building, Chicago, Illinois

"Doing One Thing Well"

Your jobber stocks them

McDONNELL Boiler Water Level CONTROL

SUPPLY NEWS

Month's Developments among Manufacturers, Wholesalers and Salesmen in All Sections

Central Supply Association Directors to Meet in Chicago

A special meeting of the executive committee of the Central Supply Association has been called for Chicago on Dec. 5.

Ridge Tool Company Expanding to Include New Building

The Ridge Tool Co. of Elyria, Ohio, has recently more than doubled the size of its plant with the addition of a new brick building.

Boston Pipe & Fittings Co., Inc., Moves to Cambridge

Boston Pipe & Fittings Company, Inc., has just announced the removal of its business from 275 Congress Street, Boston, to 149 Sidney Street, Cambridge, Mass. The change took place November 5.

Revere Copper and Brass Incorporated Opens Office in Dallas, Tex.

Revere Copper and Brass Incorporated of New York City announces that it has opened an office at 804 Tower Petroleum Building, 1905 Elm Street, Dallas, Texas, in charge of W. Russell Weil, southwestern district manager.

Frank Bros. Mfg. Co., Inc., Celebrates Opening of New Business Home

Frank Brothers Manufacturing Company, Inc., held formal opening of its new offices and warehouse at 10 West Houston Street, New York City, on Saturday, October 27, and the event proved a most enjoyable success. Six hundred and seventy-one representatives of the plumbing supply industry attended the party, which was in progress 12 hours, beginning at 1:00 o'clock in the afternoon. This concern was formerly located at 476-78 Broome Street, New York City.

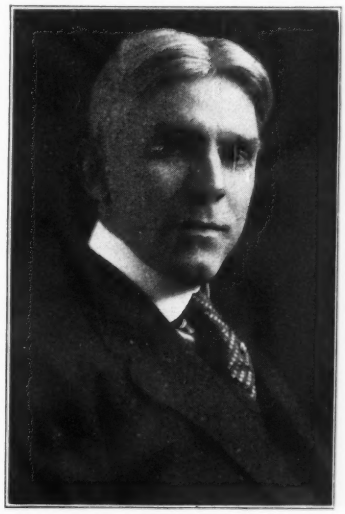
Johns-Manville Credit Corporation Is Now in Operation

The Johns-Manville Credit Corporation, the recently formed subsidiary of Johns-Manville of New York City, is now able to finance industrial and commercial repair and modernization work through the cooperation of the Federal government, according to an announcement issued by the parent corporation. The new credit corporation is capitalized at $1,000,000, to make credit for repairs and improvements, easily obtainable.

Wm. M. Byrd, Jr., Appointed Chairman Bureau's Finance Committee

The appointment of Wm. M. Byrd, Jr., vice president of the Alabama Pipe Company, as chairman of the Finance Committee of the Plumbing and Heating Industries, is announced by W. E. Price, president.

Other members of the 1935 Finance Committee are John J. Calnan, president of the National Association of Master Plumbers; C. R. Crane II, vice president of Crane Co.; Charles K. Foster, executive president of the American Radiator Co.; John J. Kennedy, vice president of the National Tube Co.; and Walter J. Kohler, president of the Kohler Company.



Wm. M. Byrd, Jr.

The committee has sent a letter to all associations of manufacturers, wholesalers, and contractors in the plumbing and heating industries is particularly valuable at this time in connection with the nation-wide modernization campaign sponsored by the Federal Housing Administration," says Mr. Byrd.

"With newspapers and magazines ready to extend the fullest coöperation to the Federal Housing Administration in its efforts to stimulate modernization, it is obviously to

the interest of the plumbing and heating industries to see that officials of the FHA are constantly supplied with editorial and pictorial material pertaining to our industries.

"This is the job which the Bureau is doing, and it is a work which merits the support of all associations of manufacturers, wholesalers, and contractors.

"The committee particularly appeals to every manufacturer, wholesaler and contractor who has an investment in this business to see to it that the association of which he is a member is giving the fullest support it can to the work of the Bureau.

"In the letter which we are sending to the 21 associations which underwrote the 1934 budget we are asking them to increase their 1935 subscriptions by at least 25 per cent."

In its letter the committee calls attention to the 23 per cent gain in new residential construction in October over September and the steady increase in modernization work.

Duriron Co. Makes Changes in Branch Office Management

The Duriron Company of Dayton, Ohio, has just announced the following changes in the management of its branch offices: N. E. Philpot, who has been manager of the Chicago office for several years, has been placed in charge of the New York office, succeeding W. E. Pratt, who recently resigned. Col. M. W. Smith, formerly manager at Buffalo, is taking over the management of the Chicago office. W. A. Watkins has been transferred from the general sales department at Dayton to Buffalo as manager.

A. M. Byers Co. Leases Offices in R. C. A Building

The A. M. Byers Company, manufacturer of wrought iron products at Pittsburgh, Pa., has leased large offices on the sixteenth floor of the R. C. A. building, Rockefeller Center, New York City.

Oster-Williams Opens New York Office and Display Room

Oster-Williams of Cleveland, Ohio, manufacturer of pipe threading equipment, has just opened an office and display room at 292 Lafayette Street, New York City. The new establishment is in charge of the company's district manager, H. B. Van Osten.

Will Represent Schaible Foundry & Brass Works Co.

Henry W. Letcher, 50 Church Street, New York City, has been appointed New York and Northern New Jersey representative for the Schaible Foundry & Brass Works Company of Cincinnati, Ohio, manufacturers of valves and plumbers' brass goods.

Appointed Sales Representatives for Excelso Products Corp.

Excelso Products Corporation of Buffalo, N. Y., has just appointed J. G. Gregory & Company as its representatives in Chicago and surrounding territory. J. G. Gregory & Co. are located at 1917 Builders Building, 228 North LaSalle Street, Chicago. They have recently appointed C. H. Jodar to cover the western end of their territory with headquarters at 621 Fifteenth Street, Moline, Ill.

San Francisco Trade Plans Big Christmas Party

A preliminary organization meeting, at which plans were made for the annual Hi-Jinx party of the Plumbing and Heating Club of San Francisco, was recently held at the Palace Hotel in that city. The date has been set for Thursday, December 13th, although the location has not yet been definitely decided. The affair will start with an afternoon golf tournament. followed by a big 19th hole get-together, with a turkey dinner and elaborate floor show in prospect. The general committee on arrangements consists of Willard H. Rainwater, Elmer K. Ross and Hal Sales.

Lehman Sprayshield Co. Appoints Additional Representatives

The Lehman Sprayshield Company, manufacturer of shower bath enclosures at 2514-18 North Broad Street, Philadelphia, has just announced the appointment of the following additional representatives to serve the plumbing trade:

Jos. M. Beglen, 104 W. Pearl Street, Cincinnati, Ohio.

L. Villere Cressy, 817 Poydras Street, New Orleans, La.

C. G. Goff, 1214 Harvey Street, Omaha, Neb.

F. C. Jack, 1650 S. W. 16th Street, Miami, Fla.

M. M. Kenyon, 41 Hubbard Street, Battle Creek, Mich.

H. H. Leukart, 297 South High Street, Columbus, Ohio.

Fred A. Schossow, 8710 Radford Street, Detroit, Mich.

Louis Tucker, 80 Broad Street, Boston, Mass.

Theodore E. Knapp, Rm. 924, 101 Park Avenue, New York City.

Geo. Taylor, 114 West 36th Street, Indianapolis, Ind.

R. L. Hanschke, 2029 Morrison Avenue, Lakewood, Ohio.

Bradfield Bldg. Products Co., 4814 Loma Vista Avenue, Los Angeles, Calif.

Trupar Inc. Organized to Take Over Parts of Trupar Mfg .Co.

Trupar Incorporated is the name of a concern which was recently organized and has started in business at 420 Linden Avenue, Dayton, Ohio, after having purchased the assets of the Pump-Water System and Water Softener Division of the Trupar Manufacturing Company of Dayton. It is understood that all patents, dies, tools, good will, factory and trade name were included in the purchase.

The officers of the new company are: President, B. K. Williamson; vice president, W. J. Lantz; secretary and treasurer, E. R. Neff.

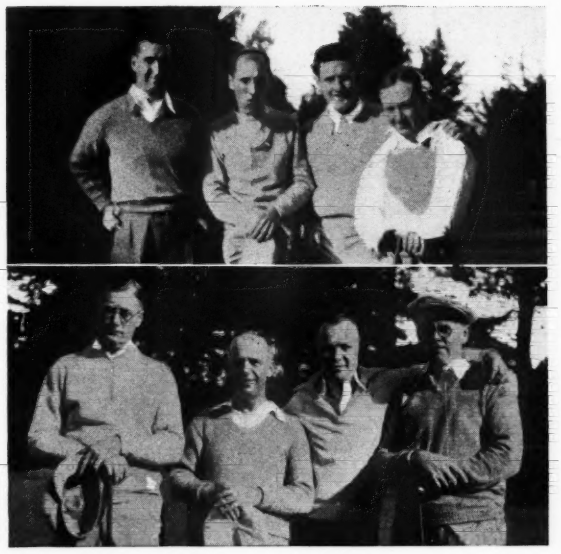
Mr. Williamson was formerly with the Valley Engineering Co. in charge of sales for the state of Florida. He also served for several years as western sales manager for the Trupar Manufacturing Company.

Mr. Lantz formerly held several executive positions with the Duro Company and the Trupar Mfg. Co., and he is president of the Lantz-Phelps Corporation.

Mr. Neff has been identified with the pump and water softener industry for the past 25 years.

Ellwood Foundry & Machine Co. Changes Name to Ellwood Co.

Ellwood Foundry & Machine Co., manufacturer of sanitary enameled ware, Ellwood City, Pa., has just announced that it has changed its name to Ellwood Co. Articles of amendment providing for this change have been filed and have been approved by the Secretary of State. The management of the company remains unchanged.



Top row, left to right: W. P. Woodridge, James Gayner, W. P. Scott, Jr., and R. J. Fuite. Lower row, left to right: Frank Nickerson, O. Langton, J. V. Greer and F. J. Chittenden, at the San Francisco Plumbing and Heating Club's tournament

San Francisco P. & H. Club Holds Successful November Tournament

The monthly tournament of the Plumbing and Heating Club of San Francisco, held November 15 at the beautiful California Golf Club, was more than just one more tourney, the banquet drawing many members who could not get away to play golf. The informal meeting at dinner was featured by final arrangements for the Christmas Hi-Jinx party, set for December 14, at the Millbrae Club. The door prize, a fat Thanksgiving turkey, was awarded to Stanley Atchison. The club extended welcome to three new members—John N. Miller of the McCormick Steamship Company, Walter M. Derbyshire of the Ace Sheet Metal Works, and Wm. R. Strickland of the Sudden & Christensen Steamship Company.

The tournament was featured by the following awards: Low net honors, Class A, to Wm. Scott, Jr., 82-9-73; low net, Class B, to J. V. Greer, 93-18-75; Fred Chittenden for his high gross of 113, which earned him the iron cup. W. P. Wooldridge and J. N. Miller tied for the blind bogey prize, and Mr. Miller won. Besides capturing Class A honors, Mr. Scott gained title to the Church trophy for the current month, with a low net of 82. The scores follow:

	G.	H.	Net		G.	H.	Net
Rainwater	100	20	80	Camp	93	11	82
Olsen	111	25	86	Mixter	89	9	80
Woodson	99	14	85	Derbyshire	94	14	80
Gabbert	101	18	83	Miller	89	14	75
Greer	93	18	75	Nickerson	96	19	77
Langton	108	Guest	108	Chittenden	113	29	84
Elliott	85	9	76	Taylor	98	16	82
Scott	82	9	73	Wooldridge	101	23	78
Gayner	97	Guest	97	Atchison	123	Guest	123
Heleck	85	9	76	Fuite	89	15	74

Fred J. Wagner Called by Death

Fred J. Wagner, president of the F. J. Wagner Supply Co. at 2436 Ballou Street, Chicago, manufacturers' agent, died recently of heart failure at his home in that city in his 42nd year. He had lived in the Logan Square district in Chicago and was well known by plumbing contractors in that part of the city. He is survived by his widow.

In a Personal Way

E. I. LEIGHTON, president of the Leighton Supply Company of Fort Dodge, Iowa, reached another milestone on November 4th, the 67th anniversary of his birthday, and the event was celebrated with a surprise party, a flood of congratulatory letters, birthday cards and telegrams as well as many gifts. So quietly had all arrangements been made that the surprise party came as a real surprise to him. Among the out-of-town gifts were a large birthday cake with 67 candles, boxes of bon-bons, and several baskets of fruits and flowers; and he received about 80 letters, more than 50 cards, and 20 telegrams from all parts of the country.

BERNARD J. LEE, vice president of Jenkins Bros. of New York, N. Y., and Bridgeport, Conn., left recently on a business trip to France.

R. G. K WARD has been appointed sales representative for J. B. Wise, Inc., of Watertown, N. Y. He will make his headquarters at 2207 Hampton Avenue, Montreal, Quebec. Mr. Ward will cover the province of Quebec and the city of Ottawa, Ontario.

M. L. BETTCHER, formerly general superintendent of the Duriron Company, Inc., of Dayton, Ohio, has been promoted to the position of general manager of this company, succeeding Dudley H. Miller, who was recently made executive vice president. Mr. Bettcher is a graduate mechanical engineer of New York University. He joined the Duriron organization in 1920, shortly after his discharge from the army. He served as an officer in the World War.

HERBERT H. GORMAN has just been appointed general manager of the Western Maryland Supply Corporation of Hagerstown, Md. Mr. Gorman's connection with the plumbing and heating supply business began with Horne-Wilson, Inc., in Charlotte, N. C., in 1921. Later he served this concern in Atlanta, Ga., and in Florida until 1927, when he accepted the position of assistant manager of the Hajoca Corporation in Jacksonville, Fla. In 1932 he was made manager of Hajoca Corporation's Florida branches, and in 1933 he was made zone manager of this concern's five branches in Virginia and Carolina, a position he occupied about fifteen months.

J. H. MOORE, Chicago representative for the Radiator Specialty Company of Charlotte, N. C., has moved his headquarters from 1020 Lawrence Avenue to 505 North Michigan Avenue, Chicago.

Connecticut Plumbing and Heating Golfers Close Season

The Connecticut Plumbing and Heating Trades Golf Association held its final tournament of the season at Mill River Country Club, Stratford, Conn., on Thursday, October 18, with a good attendance.

The election of officers for the coming year resulted as follows: President, John F. Rowe of the Bridgeport Brass Company; vice president, E. L. Hendricksen; secretary and treasurer, William D. Pinkham of Malleable Iron Fittings Company, and team captain, Morris Blackhall of the Wolverine Brass Co.

President-Elect Rowe was presented with a beautiful gift from the members of the association as a token of their appreciation for the fine service he has rendered them as secretary and treasurer of the association for several years.

The prize winners and their scores follow: I. Dugdale,

87—17—70; T. A. Johnson, 77—5—72; L. E. Getters, 85—12—73; H. E. Evans, 98—24—74; A. E. Russell, 90—14—76; M. K. Blackhall, 88—11—77; J. H. Byrnes, 107—30—77; R. Survey, 105—27—78; D. Malloy, 87—8—79; W. D. Pinkham, 101—22—79; H. D. Williams, 88—8—80; J. F. Rowe, 113—33—80; E. Hendricksen, 97—16—81; Wm. Groark, 98—17—81; C. V. Pauley, 99—16—83; H. A. Rowe, 102—18—84.

N. E. Metal Products Golfers Close 1934 Season

The New England Metal Products Golf Association held its last tournament of the season at the Salem Country Club in Peabody, Mass., on Thursday, October 25, with an attendance of 35 members and guests.

The weather was perfect for golf with a temperature of about 60 deg, and the Salem course, which is a good one, was in fine condition. Eighteen holes were played in the morning, and 18 in the afternoon.

The prize winners were: 1, Edward B. Corcoran, 100—21—79; 2, William B. Hayes, 84—4—80; 3, John Cronin, 108—27—81; 4, W. S. Earle, 94—11—83.

Prizes were also awarded to those who tied with 84, as follows: Warner B. Day, 86—2—84; E. B. Lane, 84—0—84; Morgan G. Chamberlin, 102—18—84.

The dinner and business meeting in the evening was presided over by President Robert McKeown, who announced the appointment of Thomas Dawson, Jr., as chairman at the annual midwinter dinner of the association, which is to be held in February.

An unusual surprise was given every member, when they were presented with a ten-pound turkey just because they had attended the last meeting; and probably the guests of the members were more surprised to find that even they were presented with a fine bird.

This tournament brought to a close the 17th season in the history of the New England Metal Products Golf Association, as it was organized in 1917.

Morris D. Robinson Dies of Heart Disease

Morris D. Robinson, manager of the Philadelphia Branch of Crane Co., died suddenly of heart disease at his home in Oak Lane, Pa., on Thursday morning, November 1, in his 64th year. Mr. Robinson was born in Louisville, Ky. His first business connection was with the Illinois Malleable Iron Company of Chicago. He had been connected with Crane Co. for thirty-one years, the last twenty-three as manager of the Philadelphia Branch. He was a director of Trenton Potteries Co., president of the Tri-State Plumbing and Heating Supply Wholesalers Association, and a member of the Manufacturers Club. Funeral services were held at Philadelphia on Monday, November 5, and attended by more than 500 persons. The pallbearers were: E. S. Aitkin, E. M. Abbott, William M. Anderson, William A. Brecht, John A. Campbell, Edw. C. Carpenter, Geo. V. B. Leith, Andrew McKee, Chas. E. Monday, Henry M. Paist and Grover C. Tuft. Interment took place at Chicago. His widow survives him.

Walter B. Merriam Called by Death

Walter B. Merriam, formerly one of the owners of the Ames Iron Works at Oswego, N. Y., before the sale of the plant to the Pierce, Butler & Pierce Manufacturing Corporation of Syracuse, N. Y., died in the Polytechnic Hospital in New York City on Friday, November 2nd. Mr. Merriam spent much of his time in New York City and had served as president of the Union League Club in that city.

Hutchinson—

(Continued from Page 34)

must also be "inspected" at the different stages if the product is to flow steadily and satisfactorily to its destination in consumer use.

In avoiding such mistakes perhaps we were fortunate at the start in having a principal product—air and vacuum valves for radiators—which demands a certain amount of know-how in installation, if the best results are to be obtained. A vacuum valve cannot give its best service to the user if the heating system is leaking air in other places, such as around supply valves, water gage glasses, or safety valves.

With any appreciation of our responsibility to the consumer, we could not take such a product and—after advertising what it would accomplish in fuel-saving if properly applied to the heating system—dump it upon the counters of retail stores. When he organized this company, therefore, George D. Hoffman instituted the policy of selling *only* through the channels of wholesalers to plumbing and heating contractor, to consumer. All our products—which include, in addition to the valves already mentioned, supply valves, traps and vacuum pumps—are as strictly conned to such channels as is possible by the means we have been able to devise.

USE CONTRACTORS AS OUTLETS

In keeping with this plan, Hoffman specialties have never been sold by us, or with our consent to purchasing companies, or mail-order houses, hardware, "Direct-to-You," or department stores. Not that we have any quarrel with such retail outlets, but they are not usually qualified to recommend the proper types of equipment or advise as to their correct application. We further believe that these types of outlets perform no useful function in the sale of our products which is not better performed by the heating and plumbing contractor. In this we are not unduly restricting our sales opportunities, for there are now some 2,000 plumbers in America who have well-located showrooms and display windows in the shopping areas.

But we are extremely concerned in the maintenance of the favorable opinion of our products in the minds of the public. While our specialties are sold as commodities, they are designed to give the user a service which can only be assured if they are installed by those skilled in their application.

To insure confinement to these desirable outlets, we sell only to a selected list of generally recognized wholesalers, giving us national distribution in every important trading area. Although this list is an old-established one, it is continually in the process of weeding out and building up. Wholesalers are selected for credit standing, for their knowledge of selling heating appliances such as is revealed in their demonstrated merchandising ability, for the coverage they provide, and for their adherence to our policy of selling exclusively to plumbing and heating retailers.

QUOTE INSTALLED PRICES

We have always strongly advocated and endeavored by every lawful means to have our suggested re-sale prices maintained, in order that every sale of our merchandise may yield a fair margin of profit to the wholesaler and contractor. Our price lists to the trade now publish a suggested selling price to the consumer on sales of valves "over the counter." We recommend, however, that the heating contractor sell all items in the Hoffman line *installed*—at a price established by taking his cost of material and labor,

adding for overhead, and then adding a reasonable profit on each particular installation. Incidentally, prices on our line now average 20 per cent below the so-called "normal price level of 1926."

Because of this set-up, which is built upon a mutuality of interest, we have come to think of our selling policy as a partnership proposition—in four parts.

I can say without hesitation that it has been a good plan for us all these years. It is a policy calculated to work to the mutual benefit of all partners in reaching the prudently attainable maximum of business under all conditions.

WHOLESALERS PUSH LINE

There is evidence, in his willingness to support the manufacturer who supports him, that it is a good plan for the wholesaler. It seems to me that the wholesaler is beginning to realize more and more the economic soundness of adopting one line for a certain product, and confining his sales efforts to that line—provided, of course, that the line covers the desired quality and price range. Then, instead of having money tied up in different brands and aggressively merchandising none, he can concentrate on one line.

His sales force reacts favorably to such a plan. No longer suppliers of any brand the dealer may want to ask for, they can go out and do a real and satisfying sales job on one product which they have learned how to sell. Good salesmanship does not flourish when a man has to thumb over and over again through an endless portfolio, repeating parrot-like, "Wha'da'ya want? Wha'da'ya want?"

We provide every possible sales co-operation for our wholesalers and their plumbing and heating retailers, not only through our national advertising but also by means of mailing pieces and letters to turn up prospects and give the initial impulse to the buying urge.

USE OF SALESMEN

Our own salesmen are primarily educational and contact men, working with wholesalers and contractors. They are really heating engineers and capable service men doing an educational job. They contact wholesalers' salesmen regularly, but entirely from the educational angle. For instance, in Buffalo, our zone sales manager covers the wholesalers as to business relationships, etc. Our salesmen in that zone hold meetings with wholesalers' salesmen, advising them on service and installation problems and standing ready to help out on technical angles whenever there is a tough sales nut to crack.

With a product such as ours, we consider all this as a legitimate part of the selling function. Every time we put a stock of our products in a new wholesaler's place our salesman becomes, you might say, a part of the bill of goods.

At this point in the distribution of our product, we are equally insistent upon *two* things first, that the wholesaler shall carry an adequate stock to supply promptly his territory's normal needs; second, that the stock shall move fast. We put strong emphasis upon the fact that from where we stand a sale is not a sale until the consumer has the product in use. Our products were developed to fill consumers' needs —not warehouses. And a wholesaler who does not get turnover, turns up missing from our selected list.

The important thing in this partnership spirit is that each does his part to maintain it—the company, the wholesalers, the contractors—to the end that the product may give satisfactory service. But to give that service the product must fulfill its destiny as applied to somebody's heating system. The incentive to keep the ball rolling is found in the share which each takes in the profit. And even the consumer, in a very direct way which we have always pointed out in our advertising, gets his share in the profit through fuel savings.

The Koven organization takes this opportunity of wishing their many friends in the Plumbing and Heating industries a very Merry Christmas and a Happy New Year.

May the coming year cement more closely the present relationship we now mutually enjoy.

Insist on the best by asking for Koven products from your jobber.

Send for New 1935 Plumbers' Hand-Book.

L. O. KOVEN & BRO. INC.
JERSEY CITY, N.J.

THERE IS NO BETTER STEEL PIPE

● For highly corrosive conditions or where exceedingly high pressures are encountered, it is only logical and good practice to use alloy or stainless steel pipe made by special processes . . . but for ordinary installations where Bessemer steel will meet the requirements, it is logical and more economical to use steel pipe. And the experience of users bears us out in the statement that there is no steel pipe better than Fretz-Moon.

Fretz-Moon Steel Pipe is different from other steel pipe because it is made differently—by the exclusive, scientifically controlled "continuous process." And because it is made of specially selected steel by this same process, it possesses high degrees of uniformity, ductility and cleanliness not found in steel pipe made by ordinary methods.

The story of the "continuous process" and why Fretz-Moon Pipe is better is contained in an interesting little booklet, which will be sent to you upon request.

FRETZ-MOON TUBE COMPANY • INC.
BUTLER, PENNA.

FRETZ-MOON PIPE
BLACK AND GALVANIZED

INSPECTING DISTRIBUTING SYSTEM

The reason for selective selling is to assure just such results. But its effectiveness can only be maintained by seeing to it that all pull together. We keep our products under close inspection control during production—every single valve is tested in operation before it leaves the factory, under steam, water and air pressure. That is merely good sense applied to manufacturing. But why stop there? We also "inspect" our channels of distribution and insist that they meet the test of resultful efforts. Our set-up is designed for co-operative efforts and if they are not forthcoming it is a simple matter to drop a delinquent member from the partnership. And it is also rightful that the most efficient parts of the working whole should garner the greatest rewards.

For our part, we follow through relentlessly on prospects who come to light through inquiries resulting from our advertising or direct-mail efforts. On heating engineering prospects—which are in a class by themselves—literature has already been sent when we receive postcard inquiries. These returns are immediately dispatched to our salesmen who are instructed to get in touch with the prospect within one week. But our salesmen never sell anything direct; they call in the wholesaler's man. If our salesman cannot reach the prospect within a week's time, he promptly passes the information along to the wholesaler.

ROTATING INQUIRIES

On consumer inquiries we used to rotate names among plumbers and contractors, but found that impractical. For instance, in a city like Cleveland, when it might be a certain plumber's turn to get the next inquiry, that inquirer might be located away over on the other side of the town and after making a long tour over there the plumber might find that it was just another school boy collecting catalogs. Our plan now is to rotate consumer inquiries through the wholesalers who are able to select a competent plumber close to the inquirer.

All our wholesalers are supplied with a book of duplicate forms for inquiry records. The original is mailed to the installation man, while the duplicate becomes a permanent record for later checking by our salesmen who follow through to the plumbers, reporting back to headquarters on the outcome of every inquiry. No follow-up system, of course, is 100 per cent efficient—in the human nature of things. But that is no good reason why the manufacturer should not shoot for the highest possible percentage.

All our consumer advertising is conceived to pull inquiries, and every piece of copy carries a coupon—this season our selling plans are, of course, geared up to the National Housing Act. With variations, the copy always tells the simple story of "more heat for less fuel."

We limit the story to what the product will do because the working of our valves is a concealed operation—something which takes place inside the valve and out of sight. The consumer, we take it, is a judge only on things he can see, smell, feel, taste or hear. So far as he is concerned the local heating and plumbing contractor is the "village doctor" on such problems. In effect, therefore, and in varying phrases, all our consumer copy says "Ask your contractor."

From the outset we have considered the installation men as the keystone in our selling arch. Hence our greater weight of business-paper advertising.

Frederick Hussey Dies in His 79th Year

Frederick Hussey, president of Wm. H. Hussey & Son, Inc., plumbing and heating supply dealers in New York City, died at his home in East Orange, N. J., on Tuesday, November 13, in his 79th year. Mr. Hussey was a descendant from Chris-

topher Hussey, who emigrated from England in 1632, and he was also a descendant of Silvanus Hussey, one of the original purchasers of Nantucket Island. Mr. Hussey was educated in the Friends' Seminary in New York City, and engaged in mining in Idaho and California until 1893. when he joined his father in the plumbing supply business, one of the oldest of its kind in New York City. He was a boating enthusiast and a birdlover, and he did much to maintain wild life at his summer home in Sussex county, N. J. His wife, a son and a daughter survive him.

October Shows Large Increase in Contracts for All Classes of Construction

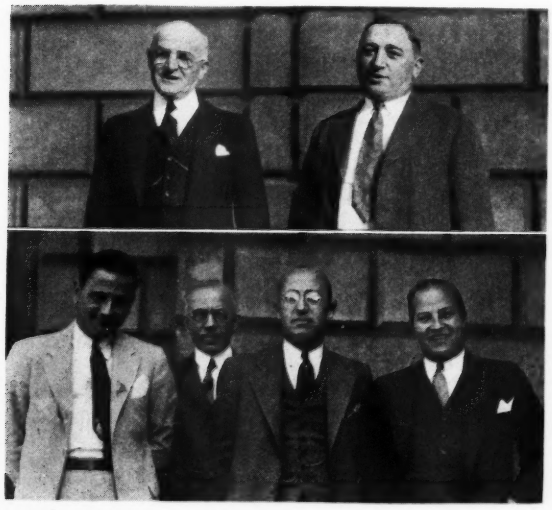
The October contract total for all classes of construction was larger than for any month since March, according to F. W. Dodge Corporation. The October total of $135,524,800 for the 37 Eastern States compares with only $110,151,200 for September and $145,367,200 for October, 1933. Gains in construction contracts as contrasted with the totals for September were shown for each of the 13 Dodge districts, except Upstate New York, where a relatively unimportant decline was reported. Increases in awards as contrasted with October, 1933, were recorded in the New England, Metropolitan New York, Middle Atlantic, Chicago, Southern Michigan, St. Louis and Kansas City territories; losses were suffered in the Upstate New York, Pittsburgh, Southeastern, Central Northwest, New Orleans and Texas territories.

For the elapsed ten months of 1934 construction awards reached the total of $1,338,986,100 in the 37 Eastern States as a whole; this is in sharp contrast with the total of only $886,158,300 for the corresponding ten months of 1933. Cumulative gains over 1933 were distributed as follows: 248 million dollars in public works; 149 millions in nonresidential buildings; 43 millions in public utilities; and 12 millions in residential buildings.

By far the most significant development in the October contract record is to be found in the residential figures, as apart from other classes of construction; the residential total of $26,299,800 reported for October was almost 50 per cent greater than the September volume and exceeded the residential total reported for October, 1933, by more than 20 per cent.

Residential contract gains were reported in October over September in each of the 13 Dodge districts with the exception of the New England, the Chicago, and the Southern Michigan Areas. Gains in residential contracts over October, 1933, totals were recorded for each major area except New England, Upstate New York, and Texas.

Contemplated construction in the 37 Eastern States recorded during October totaled $237,658,500 as against only $149,885,100 for September and $886,627,300 for October, 1933, when PWA planning was gaining its stride. Increased planning for construction jobs in October as contrasted with the preceding month was shown in each of the Dodge areas except the Upstate New York, Middle Atlantic and Central Northwest districts.



Top row, left to right: Henry McFarland and Louis J. Yauchzi, both of Rochester, N. Y. Bottom row: O. W. Harrington, Chase Brass & Copper Co., Waterbury, Conn.; Geo. H. Hyde, Watertown, N. Y.; G. L. Biggs, A. M. Byers Co., Buffalo, and C. D. Barrett, Revere Copper & Brass, Inc., New York City

C. M. Semler Dies After Two Weeks' Illness

C. M. Semler, president of the Semler Company, manufacturer of cast iron fittings, flanges and unions at Jeannette, Pa., died November 4 at his home in Latrobe, Pa., after two weeks' illness of a complication of diseases. Mr. Semler was active in business until October 20th, the day on which he was taken sick and had to go to bed. He was a member of the Masonic fraternity.

New Trade Literature

Issues Booklet on Pipe Thawing

The Hobart Bros. Co. of Troy, Ohio, has just issued a 16-page booklet, 9 by 11 inches in size, illustrating and describing in detail its method of thawing pipes with an electric arc welder. The booklet contains 14 sketches showing various methods of making connections for thawing frozen water pipes. This booklet can be obtained from the above company on request, enclosing 15 cents in stamps for each copy.

Burnham Boiler Corporation Issues Two New Catalogs

The Burnham Boiler Corporation of Irvington, N. Y., has just issued two new catalogs, one entitled "Settling the Argument About Radiators Once and for All," which illustrates and describes in detail its slenderized radiators, and the other "Automatic Cosy Comfort Heat," which features the company's oil burner boilers and contains a large amount of information about heating with oil. Both catalogs are copiously illustrated.

Mueller Brass Co. Tells of Unusual Test

The Mueller Brass Co. of Port Huron, Mich., has just issued an interesting folder giving a report of a moving plumbing display car which has been in service since 1931 and which has traversed nearly 30,000 miles in Canada, from the Atlantic to the Pacific. The car used has a total length of 27 ft. with an exhibition space of 23 ft. by 8 ft. by 6½ ft. and its total load of plumbing fixtures and piping and accesories amounts to 16,910 lb. The installation of the Mueller company's pipe and fittings, which was set up in this car in 1931, still stands in its original state and is functioning as perfectly as the day it was installed, according to A. Nairn Young, manager of the Canadian concern which is in charge of this traveling display car. He says that during the almost 30,000 miles of journey and four years of service, this piping set-up has withstood the heavy test. Among the plumbing fixtures served by this piping were one enameled iron bathtub, two toilets and one lavatory.

Booklet on Heat Acceleration

The Minneapolis-Honeywell Regulator Co. of Minneapolis, Minn., has just issued an educational booklet containing discussions on the latest developments in room temperature control. This booklet is divided into chapters on "Automatic Heat," "Heat Anticipation," "Heat and Time Together," "Heat Acceleration," "The Importance of Heat Distribution," "Thermostat Location," "Questions and Answers," etc. The booklet consists of 20 pages, 8½ by 11 in., and is well illustrated.

How to Finance Home Comforts

Davis Engineering Corporation of Elizabeth, N. J., has issued an attractive folder entitled "How the National Housing Act Enables the Home Owner to Finance Home Comforts." This folder describes and illustrates this company's submerged storage water heater and tank, its indirect water heaters, and its horizontal U-tube water heater, and it tells how the National Housing Act makes it possible to make delayed repairs and provides home comforts by installing this type of equipment. This folder is suitable for distribution to the householder.

New Booklets from Riverside Boiler Works, Inc.

Riverside Boiler Works, Inc., Cambridge, Mass., has recently issued several booklets and folders, illustrating and describing its products. The titles of these folders and booklets follow: 1, Riverside Tanks, Made to Meet the Needs of the American Home; 2, Storage Tanks for Water, Oil, etc.; 3, Oil Tanks Built to Hold Oil and Keep On Holding It; 4, Protect the Nation's Health; 5, If the Sphinx Could Only Speak!—The last-named booklet states that "if the Sphinx could speak, it would tell how copper has resisted corrosion for more than 5,000 years," and it adds that "copper is one of the oldest known metals. Next to gold, silver and platinum, copper is one of the most ductile and malleable of metals and its increased use in modern times has been due to the fact that it has in practical use proved all its claims to durability. It was used by the ancient Romans and Greeks for water vessels, ornaments and trinkets for personal and household adoration."

Convention Dates

December 3 to 8, 1934.—The Eleventh National Exposition of Power and Mechanical Engineering, at Grand Central Palace, New York City.

January 28 to 31, 1935.—A. S. H. V. E.—The forty-first annual meeting of the American Society of Heating and Ventilating Engineers at Buffalo, N. Y.

February 4, 5 and 6, 1935.—OHIO.—The annual convention of the Ohio State Association of Master Plumbers, at Columbus, Ohio, with headquarters at the Deshler Hotel.

May 4, 1935.—IDAHO.—The annual convention of the Master Plumbers of the State of Idaho, at Idaho Falls, Idaho, with headquarters at the Bonneville Hotel.

May 6 and 7, 1935.—FLORIDA.—The annual convention of the Florida State Association of Master Plumbers, at Orlando, Fla., with headquarters at the San Juan Hotel.

May 14, 1935.—SOUTH CAROLINA.—The annual convention of South Carolina Master Plumbers Association, at Anderson, S. C.

May 15, 16, 17 and 18, 1935.—NEW JERSEY.—The annual convention of the New Jersey State Association of Master Plumbers, Inc., at Jersey City, with headquarters at the Plaza Hotel.

May 20, 21, 22 and 23, 1935.—CALIFORNIA.—The thirty-fourth annual convention of the State Association of Master Plumbers of California, at Santa Monica, Calif., with headquarters at the Miramar Hotel.

May 20, 21 and 22, 1935.—PENNSYLVANIA.—The annual convention of the Pennsylvania State Association of Master Plumbers, at Harrisburg, Pa., with headquarters at Penn-Harris Hotel.

Attractive Counter Display

with 36 Cellophane front 2 color individual boxes.

•

Each box contains 10 bevelled asbestos compound washers (5 sizes) and brass screws (3 sizes).

•

Write for name of nearest jobber.

DON'T LET THIS HAPPEN TO YOU!
5 SIZES — Bevelled Asbestos and Rubber Faucet Washers with Brass Screws
WITH THE GUESTS DUE ANY MINUTE, ALLEN, WITH THE FAUCETS APART, FINDS HE HASN'T THE PROPER SIZE RUBBER WASHER.
Fits Any Faucet — Suitable and Guaranteed for Hot or Cold Water They Never Disappoint
GET YOUR "LUCKY STRIKE" FAUCET WASHER ASSORTMENT TO-DAY
LUCKY STRIKE
FAUCET WASHERS

•

By featuring the "LUCKY STRIKE" Assortment at a price to meet all competition, the Plumber will gain his customers' good will and acquaint his trade with the economy of coming to the plumber for supplies.

•

A PRODUCT OF

LAVELLE RUBBER CO., 318 W. ILLINOIS ST., CHICAGO

NEW STORE·SHOP and JOB ITEMS

Cast Iron Cabinet Sink

The cabinet sink which is shown here has been made especially applicable to the requirements of small homes and apartments. It can be furnished in white or in color and with either a right or left corner installation. Also, it is available as a unit by itself or as a part of a continuous table top cabinet arrangement. This cabinet sink is made of cast iron with all exposed surfaces porcelain enamel, regular or acid resisting. It is of the double

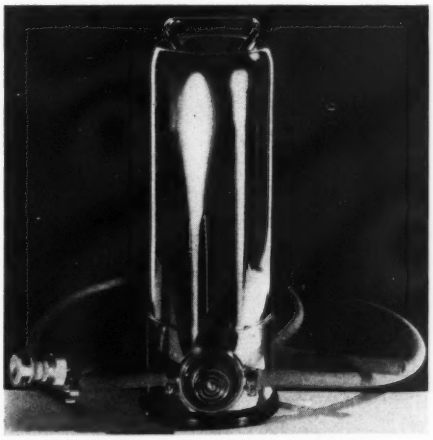
drain board type being 60 in. long by 25¼ in. wide. The back is 8 in. high so as to permit its installation under a window. The basin is 22 in. by 18 in. by 8 in. deep and is furnished with a waste having a removable cup strainer. The back, drainboards and basin are made all in one piece. Crane Company, located at 836 So. Michigan Avenue, Chicago, Ill., is the manufacturer.

A New Brazing Flux

A new flux has just been announced on the market for use in speeding up and improving brazing operations on either ferrous or non-ferrous metals. It is described as having a relatively low melting point for the various purposes for which it will be used and as permitting the operator to take full advantage of silver solders and brazing alloys having low flow points. Furthermore, it is described as having positive solvent action on a wide variety of oxides, the idea being that this feature speeds the brazing operation and insures a thorough wetting of the joint surfaces at low brazing temperatures. This new flux is made up in paste form ready for use. Also, it is made so that it can be washed off readily with a little hot water. This flux is recommended for brazing stainless steel, steel, monel metal, nickel, copper, brass, bronze and various other ferrous and non-ferrous metals and alloys. It is sold in ½, 1 and 5 lb. jars. Handy & Harman, located at 82 Fulton Street, New York City, is the manufacturer.

Portable Water Softener

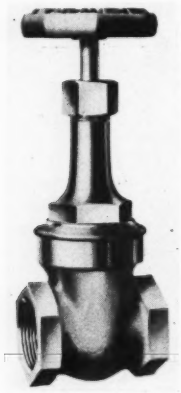
Here is a water softener unit which is designed to give softened water for bathing, shaving, shampooing, drinking, laundering and dish-washing. It can be connected to either the hot or cold water faucet depending upon the user's needs. A rubber faucet adaptor with an external clamp is supplied to make a firm connection. This is designed to be removed instantly when desired. The softener is made of what is described as corrosion resistant materials. The finish is chromium plated. It operates on the Zeolite or base exchange principle. Reconditioning or regenerating of the mineral can be accomplished periodically with common salt through the manipulation of the control valve situated in the base. The Permutit Company, 330 West 42nd Street, New York, N. Y., is the manufacturer.

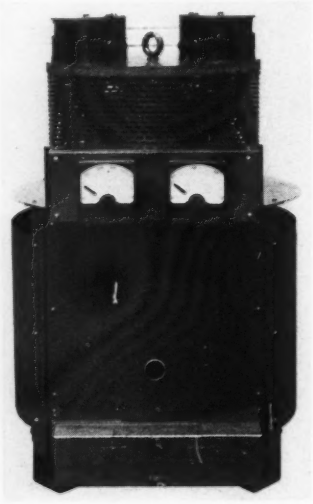


Rising Stem Gate Valves

An announcement has just been made of a new line of rising stem heavy standard bronze gate valves for 150 lb. working steam pressure and 250 lb. working water, oil or gas pressure. The operating mechanism of this valve employs solid wedge discs which are described as being simple, heavily proportioned and accurately machined. A flexible connection is provided between the disc and the stem so that the stem will not bind or spring when the

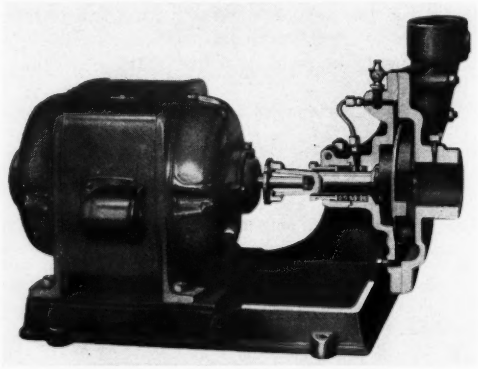
valve is closed. The stem is made of a bronze composition and is described as having a high tensile and torsional strength and a large number of contact threads in the bonnet. The bonnet hexagon has been made extra large and close to the body so as to eliminate the danger of distorting the bonnet when a wrench is applied for installing or disconnecting it. Additional features listed for this new design are the deep stuffing box with gland and square section molded packing rings, the large non-heating malleable-iron hand wheel which is secured to the stem by a nut and the heavy wide pipe end hexagons with a generous number of threads. The Kennedy Valve Mfg. Co., located at Elmyra, N. Y., is the maker.





A. C. Arc Welding Equipment

There has been made available a complete line of alternating current arc welding equipment, as an addition to a line of direct current arc welding units. This includes transformer units, electrodes and automatic welding heads and control. This new equipment is intended for heavy current welding—primarily automatic welding because of the heavy current involved, but otherwise equally well suited to hand applications. The new transformer units are available in three sizes having one-hour ratings of 500, 750 and 1000 amperes. Primaries are wound for 220, 440 or 550 volts; 60, 50 or 25 cycles; single phase. Extra attachments are available for reducing the secondary open-circuit voltage to approximately 50 per cent of its normal value (normal being 89, 90 or 100 volts) and for obtaining currents down to 10 per cent of the one-hour rating. The transformers themselves are of the high-reactance type, air-cooled and enclosed in a cylindrical shell. An arrangement is provided to vary the reaction so that the full welding range of the equipment can be obtained on any one of three secondary open-circuit voltage settings, the latter being selected by means of taps on the primary winding. These new A. C. equipments are intended primarily for shop use in semi-permanent locations, a lifting eye being provided on top of the transformer unit by means of which the set can be moved readily by a crane. General Electric Co., located at Schnectady, N. Y., is the manufacturer.



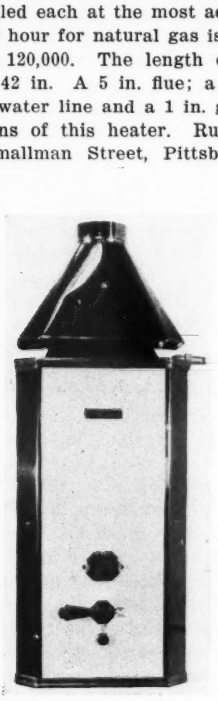
New Close Coupled Centrifugal Pumps

Announcement has just been made of a new line of close coupled side suction centrifugal pumping units. The accompanying illustration shows one of these. The outstanding feature listed for this new line is that any make of standard ball bearing motor of the open, enclosed, splash-proof or explosion-proof type can be used. The pump and motor are mounted on a substantial base plate so as to eliminate any unbalanced overhang of the pump or motor. The cradle mounting of the pump is designed to permit expansion when handling hot liquids without disturbing the alignment of the unit. The Deming Company, of Salem, Ohio, is the manufacturer.

Automatic Gas Water Heater

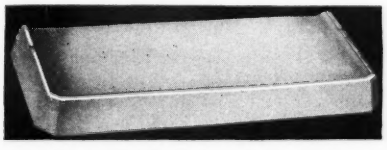
An announcement has just been made of a new faucet action water heater for use in small installations such as required for average drug stores and similar establishments. The opening of the faucet starts the gas burning through a synchronized arrangement designed to start the heating as soon as the faucet is opened. The speed at which the water is heated is described as being in direct ratio to the flow of the water. This equipment is made to be used without a storage tank. All of the waterways are made of brass and copper. Flexibility of installation is another feature mentioned for it. It is pointed out that this heater can be connected anywhere wherever a

flue and gas supply are available. In larger homes or buildings with widely separated fixtures, two or more units can be installed each at the most advantageous point. The Btu. input per hour for natural gas is listed at 110,000; manufactured gas 120,000. The length over all including the draft hood is 42 in. A 5 in. flue; a ½ in. cold water line; a ½ in. hot water line and a 1 in. gas line are listed in the specifications of this heater. Ruud Manufacturing Company, 2934 Smallman Street, Pittsburgh, Pa., is the maker.



Adjustable Closet Tank Covers

Here is a line of one-piece china tank covers which has been placed on the market to replace broken covers on low-down china toilet tanks. Three adjustable brass brackets fit inside of the tank and are designed to hold



the cover firmly in place. The replacement is made merely by measuring the outside width and length of the tank shell. Then the nearest size and shape cover is used. The brackets are adjustable so as to make a firm fit. Tank covers in three styles are available. The adjustment of the brackets makes up for a variation of 1 in. in width and 2 in. in length. Anchor Products Manufacturing Co., located at 30 Church Street, New York City, is the maker.

A New 75 Ampere Arc Welder

Demands for an arc welder which can be used on thin sheets, plates and shapes are designed for in the new small generator unit just recently announced and shown on the accompanying illustration. This new welder can be supplied for use on any alternating current power line including 110 volt arcs. The makers claim that this new welding machine will deliver as low as 20 amperes at the arc without the use of auxiliary devices. This weld-

Economy and Accuracy

With Any Fixture

Watrous

FLUSH VALVES

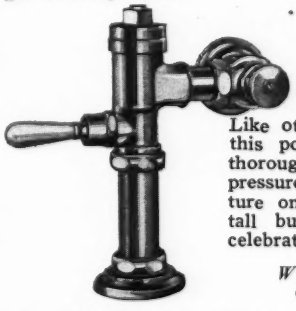
IN all Watrous valves the length of flush is regulated with absolute precision according to the needs of the fixture; water waste is completely prevented. Adjustment is made from outside in a few seconds, without turning off the water or disconnecting parts. The by-pass is cleansed at every flush—a sure safeguard against obstruction.

IMPERIAL FLUSH VALVE

A very dependable piston type valve. Has non-hold-open feature, which maintains the length of flush required, no matter what the position of the handle. The complete travel of the piston assures a full waterway.

MAJESTIC FLUSH VALVE

This serviceable diaphragm type has 25 per cent greater diaphragm-area than the ordinary diaphragm-valve. This, and the full waterway, prevent trouble under low pressures. The by-pass is self-cleansed with an automatic plunger at every flush.



JEWEL FLUSH VALVE

Like other Watrous designs, this popular piston type is thoroughly reliable at low pressures, an important feature on the upper floors of tall buildings. This is the celebrated World's Fair valve.

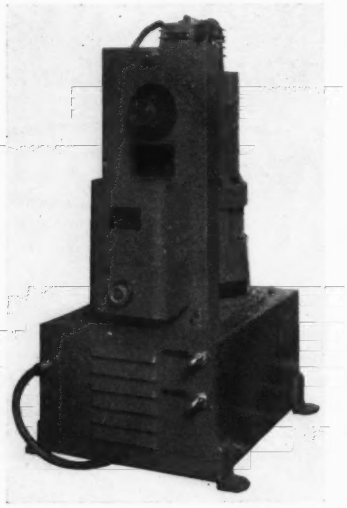
Write for Plumbing Catalog No. 433

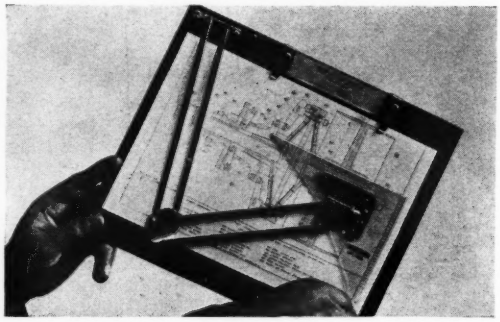
Genuine Watrous Replacement Parts Assure Trouble-Free Operation

IMPERIAL BRASS MFG. CO.

1231 West Harrison St., CHICAGO

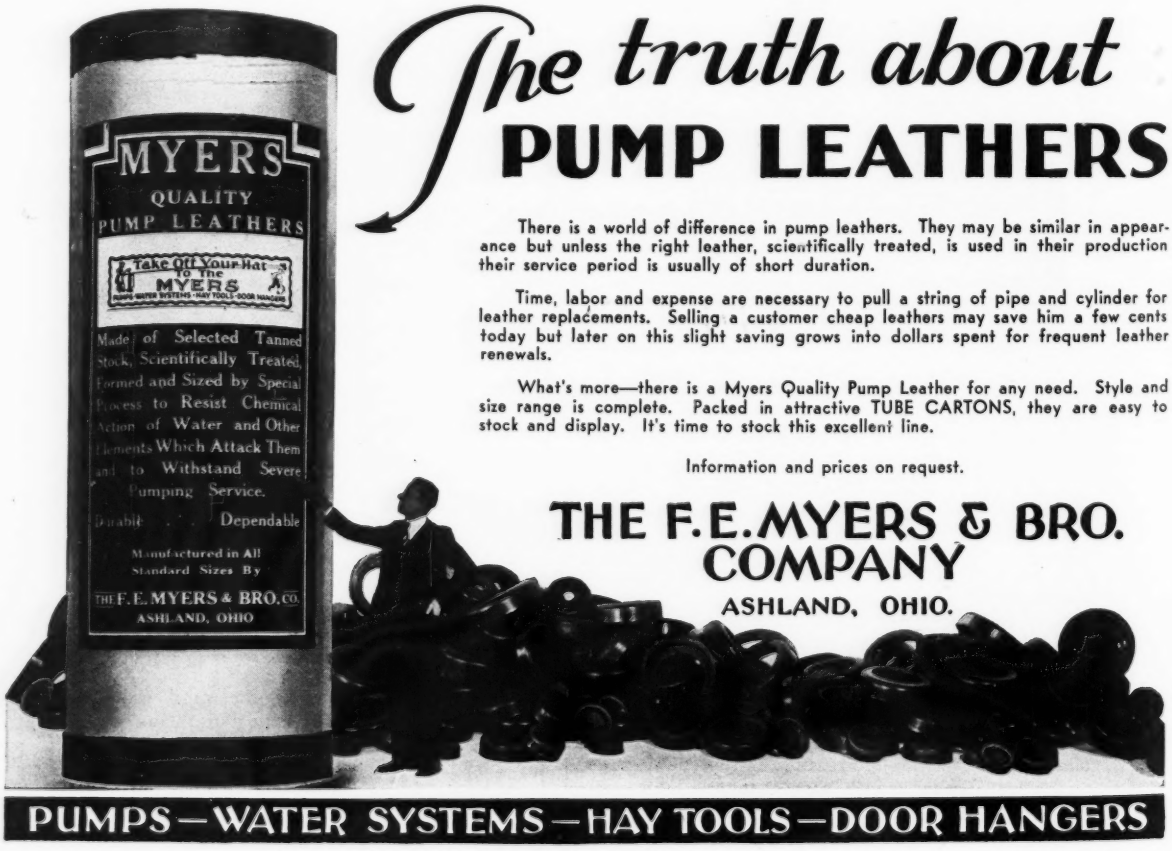
ing unit is of the A. C. motor-driven type and employs a 25 volt arc with a current range of 20 to 100 amperes. The generator is of the single operator variable voltage type with 75 ampere N. E. M. A. rating. The motor installed is of the squirrel cage induction type for across-the-line starting. The welder is supplied for alternating current of 110 and 550 or special voltages; 3, 2 or 1 phase; 60 and 50 cycles as desired. Connections are aslo readily available for 220 or 440 volts. Lincoln Electric Company, 12818 Coit Road, Cleveland, Ohio, is the manufacturer.





New Drafting Machine

The drafting machine shown in the accompanying illustration is described as being developed to meet the need for a unit that can be carried in a brief case for convenient use in the field, in the office or in the home. It includes a board and a parallel device with a drawing attachment, all in a single unit. The board is made of $\frac{3}{16}$ in. composition material and is equipped with paper clips which can hold either a single sheet or a pad of letter-size paper. L. G. Wright Co., 5713 Euclid Avenue, Cleveland, Ohio, is the manufacturer.


MYERS
QUALITY
PUMP LEATHERS
Take Off Your Hat to The MYERS
Made of Selected Tanned Stock, Scientifically Treated, Formed and Sized by Special Process to Resist Chemical Action of Water and Other Elements Which Attack Them and to Withstand Severe Pumping Service.
Durable Dependable
Manufactured in All Standard Sizes By
THE F. E. MYERS & BRO. CO.
ASHLAND, OHIO

The truth about
PUMP LEATHERS

There is a world of difference in pump leathers. They may be similar in appearance but unless the right leather, scientifically treated, is used in their production their service period is usually of short duration.

Time, labor and expense are necessary to pull a string of pipe and cylinder for leather replacements. Selling a customer cheap leathers may save him a few cents today but later on this slight saving grows into dollars spent for frequent leather renewals.

What's more—there is a Myers Quality Pump Leather for any need. Style and size range is complete. Packed in attractive TUBE CARTONS, they are easy to stock and display. It's time to stock this excellent line.

Information and prices on request.

THE F. E. MYERS & BRO. COMPANY
ASHLAND, OHIO.

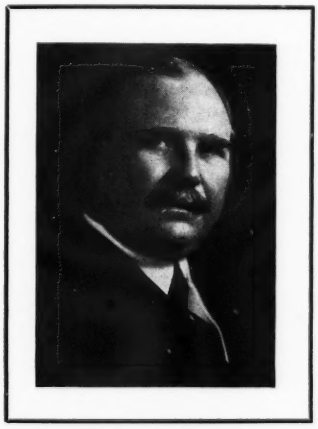
PUMPS—WATER SYSTEMS—HAY TOOLS—DOOR HANGERS

THE TRADE

News of what plumbing and heating contractors are doing the country over

Samuel F. Wilson, Past President of N. A. M. P., Dies of Heart Failure

Samuel F. Wilson of Newark, N. J., past president of the National Association of Master Plumbers, died suddenly of a heart attack on Monday evening, November 5, while attending a bowling game at Irvington, N. J. He was in his 65th year. Mr. Wilson received his education in the public schools at Newark and in the New Jersey Business College, after which he entered the plumbing and heating business. Having learned the trade he started in business on his own account under the name of the S. F. Wilson Company. He always took an active interest in civic and association affairs. In 1898 he was elected a member of the Newark Board of Education. In 1903 he went to the



Samuel F. Wilson

State Assembly. In 1916 he was appointed a member of the Newark Tax Board. He was elected sheriff in 1920 and served one term of five years. In 1925 he was appointed deputy director of revenue and finance in Newark. Having served the Newark Master Plumbers Association and the New Jersey State Association of Master Plumbers in various official capacities with outstanding success, he was in 1922 elected vice president of the National Association of Master Plumbers, and in 1923 he was made president of this organization. He also served as a member of the board of directors of the N. A. M. P. for several years. He was one of the organizers of the Clinton Trust Company in Newark and was at different times a director, vice president and president of this institution. Mr. Wilson also was a director of the Clinton Title & Mortgage Company, the Dime Savings Institution, the Y. M. C. A., and several building and loan associations, all of Newark, N. J. He is survived by his wife and a son.

FHA Program Features Northern California Federation Meeting

Gathering for the first time in close to a year, the Northern California Federation of the Plumbing and Heating Industry, being a closely knit organization composed of the industry's three branches, met at Master Plumbers Hall, San Francisco, on Monday evening, October 19th, to listen to able talks on the organization and operation of the newly enacted Federal Housing Act. More than 250 masters and representatives of wholesalers and manufacturers from northern and central California were in attendance.

Federation President James F. Mauzy of Walnut Creek introduced F. F. Elliott, manager of Crane Company's San Francisco branch, who spoke briefly on the purpose of the meeting, adding "There is no question but what the FHA is one of the most important pieces of legislation put forward by the Administration." In the capacity of chairman, Mr. Elliott then introduced the speaker of the evening, D. C. McGinness, executive assistant to the regional director of the Housing Administration.

LOAN A MILLION EACH DAY

At the outset the speaker touched on governmental assistance along several different lines in the direction of the reconstruction of business and the reestablishment of confidence. It was soon realized, he pointed out, how vitally necessary it was to help the building industry. The realization that "there could be no permanent prosperity in the country until the building industry is restored to a semblance of its former status," resulted in the passage of the Housing Act, which is now in effect and operating.

To date, according to Mr. McGinness, over a million dollars worth of loans have been negotiated in northern California. A thousand loans are being made daily throughout the country, the San Francisco Bay region accounting for between 60 and 70. The speaker concluded with the offer of the complete cooperation of his office, with the master plumbers, in answering questions and furnishing data.

Chairman Elliott then briefly addressed the meeting, stating that the plumber must realize he is competing with the other branches of the building industry.

Chicago Master Steam Fitters See Instructive Demonstration

The Chicago Master Steam Fitters Association held its regular monthly meeting on Tuesday evening, Nov. 27, with a good attendance. Following the meeting, J. G. Gregory, of J. G. Gregory & Co., Builders building, Chicago, was introduced and gave a demonstration of controlled heating equipment featuring the products of H. A. Thrush & Co. and Excelso Products Corporation. After the demonstration, refreshments were served to the members in attendance.

N.A.M.P. Directors—

(Continued from Page 26)

to relate it more closely to present conditions and tendencies in the industry. The board of directors authorized competitive examinations for this year's scholarships. It is believed that two boys will be enabled to matriculate at the Institute for the regular course.

Jere L. Murphy of the standardization committee, reported on the coöperation with the American Standards Association, and told of the Association's action on the changes which would be required on gas refrigeration units, before approval could be given. He referred, also, to the recommendations of the Standards Association with reference to certain changes in the sanitary code approved by the National Association of Master Plumbers at the New Orleans convention.

President Calnan gave a report on the activities of the Plumbing and Heating Industries' Bureau for the preceding six months and, as a result of his report, the board voted to continue its financial support to that organization.

Reports from Charles Swinnerton and Walter Eynon were read on the conventions of the American Public Health Association and the American Medical Association, which they attended as representatives of the National Association of Master Plumbers. Their reports concerned themselves purely with the transactions of these two conventions as they related to the subject of amoebic dysentery. These reports indicated the high degree of interest which these two groups of scientists have in the subject of amoebic dysentery, and the importance of good plumbing in its eradication.

Individual members of the board of directors reported on conditions in their respective territories. After a general discussion of the present status of the Association, each member of the board pledged himself to return to his territory to exert the greatest effort to increase the membership of the National Association of Master Plumbers, and to more firmly entrench its position in the industry.

ASSOCIATION WELL FINANCED

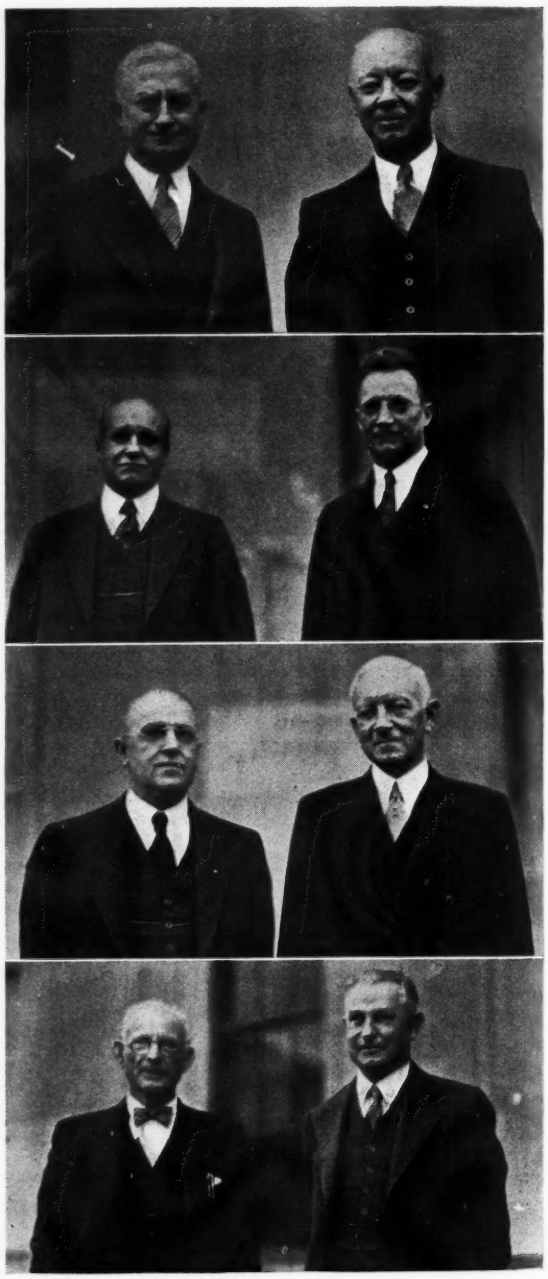
Charles Gawne, secretary of the Association, and H. O. Green, the treasurer, gave an extended report on the finances of the National Association of Master Plumbers. They reported that the finances were in a sound condition and the financial prospects of the Association most encouraging.

The report on the publication and supplies division of the N. A. M. P. disclosed a marked increase in both the quality and number of the services rendered. It was the unanimous decision of the board that the publication and supplies division is a distinct and increasingly important asset to the Association.

The recent death of Past-President Samuel G. Wilson caused sorrow to the board, and preparations were made for the appointment of a memorial committee.

A representative of the Construction League of the United States addressed the board, and the sense of the board's decision was that no obstacle be placed in the way of state associations of master plumbers who desired to affiliate with properly constituted state construction leagues. It was suggested by the board, however, that state associations contemplating such affiliation should first communicate with the national office.

The chairman of the conference committee delivered a report on the relationship of the National Association of Master Plumbers with the recently constituted federal agencies. The board instructed the conference committee to continue its efforts to have desirable bidding and contractor qualification provisions reinserted in P. W. A. bidding procedure. It was further instructed to continue its negotiations with the division of subsistence homesteads, leading



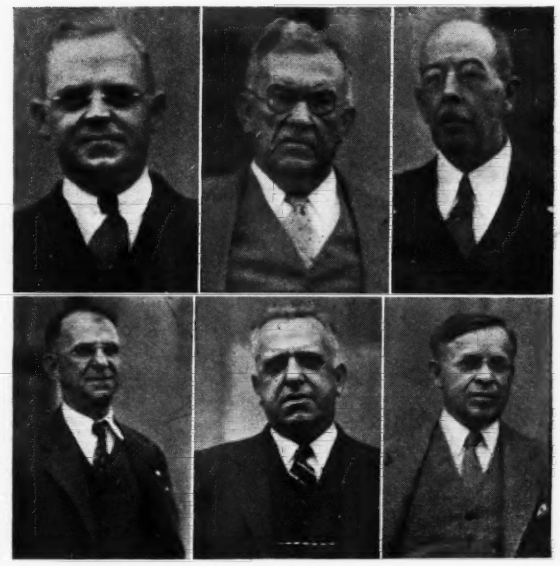
Photos taken at November meeting of Directors of National Association of Master Plumbers:

Top row, left to right: George W. Frank, Vice-President, Buffalo, N. Y., and H. O. Green, Treasurer, Tulsa, Okla.

Second row, left to right: George H. Drake, Buffalo, and Edward B. Kleine, Cincinnati, both Directors and Past Presidents of the N. A. M. P.

Third row, left to right: Walter Williams, Wilkes-Barre, Pa., and George H. Werner, Orange, N. J., National Directors.

Fourth row, left to right: R. G. Thomas, San Antonio, Texas, and John Shanahan, Norfolk, Va., National Directors. Mr. Thomas died a few days later in St. Louis, while on his way home.



At N. A. M. P. directors' meeting—Top row, left to right: Executive Secretary Jos. G. Hildebrand; D. A. Mayfield, director, Jacksonville, Fla.; Col. A. R. McGonegal, Washington, D. C. Lower row, left to right: Jere Sheehan, director, St. Louis; L. J. Kruse, director, Oakland, Calif.; Peter M. Munn, secretary to President Calnan, Chicago

to the development of a more equitable plan for the purchase of plumbing materials and installation service.

The attorney for the National Association reported at length on the present status of his efforts to vacate Equity 151. The attorney's report held out some possibility of alleviation to the members of the Association from the restrictions of this order. While the procedure in securing such vacation is fraught with many difficulties, he reported progress in the negotiations with the department of justice.

The subject of cooperation with the American Gas Association was discussed at length by the board of directors, and a survey was authorized to ascertain the present status of the relationship between local associations and the gas utilities in their territory. When the results of this survey are compiled they will be used as the basis of negotiation with the American Gas Association to effect agreements between it and the master plumbers which will be more agreeable than those now existing.

Executive Director Robert J. Barrett, of the Divisional Code Authority, gave an extensive report of code activities which went into all essential details, and amplified his report to the Divisional Code Authority on the previous day. Mr. Barrett's remarks had to do primarily with the relationship of the National Association of Master Plumbers to the code of fair competition for the industry.

The board of directors left Washington immediately after the two-day meeting, imbued with many new ideas and inspired by the contacts with their fellow-directors to return to their respective territories to carry on their work with redoubled vigor.

Pennsylvania Plumbers Talk Over Code
250 Attended Mid-Winter Meeting

More than 250 Pennsylvania plumbers attended the mid-winter meeting of the Pennsylvania State Association at Harrisburg on Nov. 24. Keen interest in code developments, in the efforts of the federal government to promote housing and in making association activities more effective were disclosed by the delegates and were the basis of an interesting program.

President William A. Schneider of Scranton acted as chairman. E. H. Meglathery, of Bethlehem, welcomed the delegates.

National Director Walter C. Williams, of Wilkes-Barre, spoke on national activities, of the closer contact with the manufacturers, and said that a closer relationship existed today than ever before, with the manufacturer recognizing the plumber's position. He told how various boards of health, medical societies, and others had sought the advice of the National Association, recognizing the place of the master plumber in protecting the health of the nation. With the New Deal and its codes, the plumber is called upon to face a new set of conditions. He also spoke on the HOLC, as all work done on this class of work must comply with the Hoover code or the N. A. M. P. code adopted at New Orleans convention. He asked each to check up on sanitary conditions in public places, hotels, etc.; to have closer contact with state officers; to comply with the code and see that others do the same; to spot out the "chiselers" and report violators; to protect your own business put your own affairs in order first.

National Secretary Charles E. Gawne, of Chicago, put plenty of pep into the meeting with a stirring appeal for association support. He praised the work of National President Calnan and of Director Williams and other national officers. He asked each plumber to realize his importance in his town as a vital factor in protecting health. He recalled epidemics that broke out in Chicago. "Our business is different, and I do not consider a plumbing job sold, 'til it has been properly installed," said Mr. Gawne.

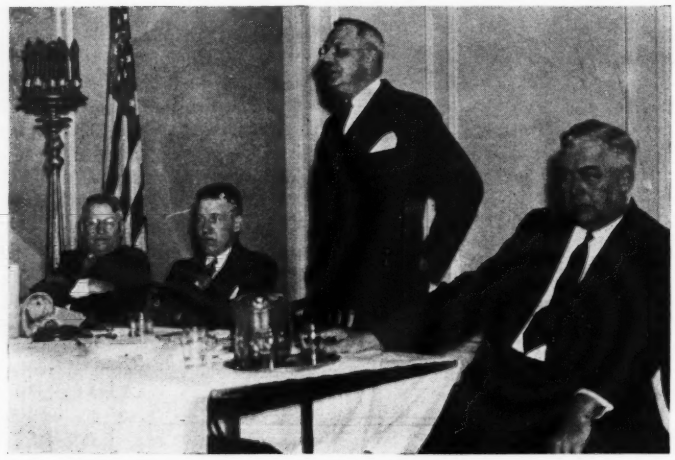
He urged more members to get into politics, as he has done, since poor politics have been a detriment to the business. In asking for code support, he recalled that the greatest Code ever written, the Ten Commandments, had been violated but their value was unquestioned.

The state executive for Pennsylvania, James H. Lutz, Jr., of Harrisburg, spoke on the Code, its enforcements, assessments and compliance, explaining in detail each of the above, and how it was up to each man to do his part in complying with the Code. The laws in the code he said, will certainly take care in a severe manner of those who do not live up to it and will not comply or pay the assessment.

He also outlined the bid depository plan and hoped that before long one would be in every city. He stated that 99 per cent of the code seems to meet with general approval and the other 1 per cent can be adjusted, this 1 per cent referring to the wage scale.

F. Leo Smith, of the Federal Housing Administration spoke on this national housing program and explained in detail the part the plumber can play.

Vice-President Harry Saeger, of Allentown, told of his trips through the state in setting up compliance boards, organizing associations, reorganizing others. He reported real interest is being taken and a gain in membership is being shown. F. J. Hanley, of Pittsburgh; Walter Raid, of Phila-



Secretary Jas. H. Lally of Olyphant, Pa.; William A. Schneider, of Scranton, Pa.; Executive Secretary Jos. G. Hildebrand (talking); and Executive Director of Code Authority Robert J. Barrett of Washington

delphia; John Sabin, of Brownsville; James F. Arthur, of Dickson City; Robert G. Johnston, of Dunmore, and Mac H. Perry, of Meadville were all called on and gave a report on conditions in their cities, on the operation of the compliance boards, the collection of assessments. They reported that this convention will prove to all that the State Association is a real factor in the enforcement of the code.

Past President Robert J. Barrett of the National Association, now executive director of the divisional code authority for the plumbing contracting industry said that the plumbing code was recognized as the best in the construction industry. He pointed out that the code fitted the large as well as the small man, since over 72 per cent do less than $25,000 a year. The break-down shows many in the $5,000 class.

He also said that the code is gaining each day and will continue to gain supporters. Now 1,937 men are on code compliance work. Enforcement is being secured and up to date, $287,000 has been paid to the Government on violations of the labor clauses. Those who believe assessments are too high, or the wage scale too high, can ask for collective bargaining agreements. He outlined the procedure to follow, recalling that Denver, Colo. has such an agreement (see Page 28). There are 121 bid depositories in the United States.

Mr. Barrett then began to answer questions which were asked by many and showed the desire to understand. Mr. Barrett answered the questions to the code procedure.

Joseph G. Hildebrand, Executive Secretary of the National Association, stated that closer contact was being made with all branches of the industry. He spoke of the associations bookkeeping system and how the Code states every man must have a set of books. He also spoke briefly on overhead. In case of a complaint, the individual must prove his point of not selling below cost. And in cost, the government has approved a chart put out by the National Association which shows what constitutes overhead. A survey made by Ernst & Ernst has been completed but has not yet been accepted by the NRA which was avoiding any semblance of prize fixing.

He stated that the government expects to spend, in the next few years, billions to promote building and the men who are alert will be rewarded with more plumbing and heating contracts. Mr. Hildebrand recited some of the work of the National Association and of what President Calnan is doing.

Among Plumbing Contractors in Chicago

The Terminal State Bank, 410 West Madison Street, Chicago, has been selected as the Bid Depository for Zone 1 which comprises the City of Chicago. All bids for plumbing over $200 under the code must first be submitted to the bid depository accompanied by a fee of $1.00. The Local Zone Committee is Chas. E. Gawne, chairman, John T. Dorsey and Wm. C. Beggs.

Wm. N. Frye, plumbing contractor at 90 N. Washington Circle, Lake Forest, Ill., passed away Friday, November 16th, the day following an automobile accident in Chicago, in which he sustained a skull fracture and internal injuries. He is survived by his widow and one daughter.

The North and West Side Master Plumbers Pleasure Club held a Smoker at the Northwest Lions' Club, 4310 West North Avenue, Chicago, on Monday evening, November 19th, at which over 400 master plumbers and supply men were in attendance. The affair was a splendid success and everyone in attendance had a wonderful time. The committee in charge was Fred W. Sorge, chairman, George Shiffer, Wm. E. Bahn, and Walter W. Sievers, president of the Club.

Midwest Master Plumbers Meet at Elk City, Okla.

Members of the Midwest Association of Master Plumbers held a well-attended meeting at Elk City, Okla., on October 24. The meeting was attended by the following guests: H. O. Green, Tulsa, national treasurer and state executive for the Code Authority; John L. Swafford, Oklahoma City, state president; Mr. Smith, Mideke Supply Co.; R. R. Thompson, Air Reduction Sales Co.; Robert Shelton, Kohler Co.; Roy Holden and Jos. Green, F. E. Georgia Supply Co.; R. S. Witherell, Walworth Co.; Mr. Keaton, Clowe & Cowen Co.; and the following from Oklahoma City: Mr. Skinner, Duro Company; A. M. Bateman, A. Ray Hanson, A. H. Moore, Ralph Morris, Ed Wilderman, Warren L. Jones, and "Bill" Damon.

H. O. Green gave an instructive talk on the program of the National Association of Master Plumbers, lauding the work now being done by National President John J. Calnan. Mr. Green also outlined the functioning of the Contracting Plumbers' Code and urged that its provisions be carried out as rapidly as possible.

Eight Hundred Plumbers Attend Code Meeting in St. Louis, Mo.

The Code Compliance Committee for the Missouri Zone No. 3, City of St. Louis, located at Room 114, Olivia Building, 1023 N. Grand Avenue, with a bid depository in the Cass Bank & Trust Co., 1450 North 13th Street, St. Louis, Mo., held a mass meeting Monday night, November 25th, with an attendance of about 800 plumbers, at which the code compliance officer of the NRA explained the duties and responsibilities of all plumbers connected with the industry to make the code successful.

The details of operation of the Bid Depository which was set up and became operative November 21, were explained by Edw. Monteath, state executive, and R. E. Jarvis of the Local Code Authority, Zone No. 3. Each speaker was given marked attention, there being no conversations on the side while the officials were explaining the new methods.

Through the Fair Trade Practice Rules outlined in the plumbing code, a marked improvement in business methods on the part of the rank and file of the plumbers is anticipated.

Milwaukee Contractors Back FHA Modernization Campaign

To boost the Federal Housing Administration's modernization campaign in the Milwaukee territory, a meeting was sponsored by the plumbing and heating industries in the city. The attendance was 268, making it one of the largest meetings of the industries ever held in Milwaukee. New business to be developed under the federal housing credit plan was outlined at the joint-dinner meeting, and pledges of co-operation in the Milwaukee County Better Homes program were given.

Speakers included George O. Hoehn, of the Better Housing Bureau, who explained the work of the local campaign; Benjamin Wenninger, president of the Heating, Piping and Air Conditioning Contractors' Milwaukee Association; H. C. Weber, president of the Milwaukee Master Plumbers' Association, and George Frankland, of the Johns-Manville Sales Corp., who led the discussion. A visomatic film showed the method of getting housing loans. George Fohey, Milwaukee representative of Johns-Manville, was chairman of the meeting.

Sponsoring the meeting, in co-operation with the organizations already named, were The Cordes Supply Co., Crane Co., F. R. Dengel Co., B. Hoffmann Manufacturing Co., Milwaukee Plumbing & Heating Supply Co., Rundle-Spence Manufacturing Co., United Plumbing & Heating Supply Co., and Wisconsin Heating & Plumbing Supply Co., all of Milwaukee, Wis.

Greater New York Master Plumbers Study Code Compliance

The Master Plumbers Association of Greater New York held its regular monthly meeting on November 19 in the rooms of the Brooklyn Master Plumbers' Association. President Matthew J. Kennedy presided at the meeting and appointed a committee of one representative from each of the Borough Associations to work out an area collective bargaining agreement. Jacob Stockinger, Jr., explained in detail how the National Code Compliance Authority is functioning and he told of the progress it is making. Among those in attendance at the meeting were State President William Foley and Wm. J. Flynn and Fergus McLoughlin.

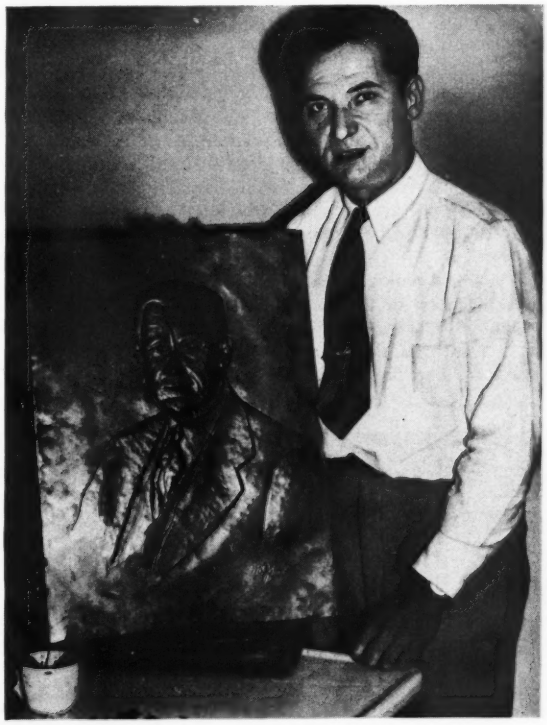
All the branch associations of the Greater New York Association were well represented at the meeting.

Master Plumber Invents New Method of Sculpture

Morris J. Savel, a plumbing contractor in Newark, N. J., specializes on new plumbing work. This is his vocation, but in his leisure hours he spends his time in a little studio in his home where he works at his avocation or side-line—sculpture of a novel kind, bas-reliefs and utilitarian articles in bronze.

At the present time he is just finishing a portrait of President Franklin Delano Roosevelt, wrought in bas-relief on bronze, as shown in the accompanying illustration. As soon as Mr. Savel completes the final touches with hammers and chasing sticks of his own design, the portrait will be presented to President Roosevelt.

Mr. Savel's methods are unique, says the "Newark Ledger." He has originated his own system of creating



bas-reliefs and believes he is the only one to practice it. His plates are approximately one-sixteenth of an inch in thickness. He hammers the likeness from the underside. A hot water boiler sometimes serves as an easel. At other times he uses a table. He deadens the sound of his mallets by placing a cushion on a lead block and hammers his bronze atop the lead.

"If you like your avocation you will manage to find time to practice it," says Mr. Savel. Proof of this and of his industry is seen in about 200 sculptures, bas-relief and articles in brone created during the 15 years he has been doing this work.

One group depicts famous figures in American history, such as George Washington, Abraham Lincoln and Theodore Roosevelt.

Another group shows bas-reliefs of characters from the Bible: "Daniel in the Lions' Den," which he considers his masterpiece; "Adam and Eve," and "Sorrow," a frieze showing devout Jews on the eve of the Day of Atonement.

File Protest on Heating Contractors' Code

The following letter which was recently sent to the National Recovery Administration in Washington, D. C., is self-explanatory.—Editor.

"222 Market Street,

"Newark, New Jersey, November 5th, 1934.

"National Recovery Administration,

"Washington, D. C.

"Gentlemen: The recently formed NEW JERSEY STATE HEATING ASSOCIATION, with a membership, at this time, of one hundred and thirty, hereby protests the Code of Fair Trade Practice for the Heating, Piping and Air Conditioning Industry for the following reasons:

"First—The Membership in the Heating, Piping and Air Conditioning Contractors National Association does not truly represent the heating contractors of the United States.

"Second—The Membership in the Heating, Piping and Air Conditioning Contractors National Association represents a class of contractors who install large power and heating systems, but do not represent the mass of heating contractors who do what is represented as home, or house heating work. A very large percentage of this work, and it is conceded that 90% is a fair estimate, is done by the plumbing contractor or master plumber. The Code of Fair Trade Practice for the Heating, Piping and Air Conditioning Industry Division may cover the conditions and Trade Practices in that part of the Industry represented by the Heating, Piping and Air Conditioning Contractors National Association, but does not protect the heating contractor doing the ordinary house heating work.

"For these reasons, we protest the Code of Fair Trade Practice (Chapter XVI of the Construction Industry) for the Heating, Piping and Air Conditioning Contracting Industry Division until such time as it is amended to protect the interests of that branch of the heating contractors who do house heating work and is known as a plumbing contractor or master plumber.

"The New Jersey State Heating Association has just started a drive for membership representing the house heating contractor. We have, today, a membership of one hundred and thirty. With another two thousand contractors in the State who do house heating installation as potential members, we anticipate a membership, before the end of this year of five hundred, at least. We are reliably informed that the membership in the Heating, Piping and Air Conditioning Contractors National Association for the entire United States is less than eleven hundred.

"NEW JERSEY STATE HEATING ASSOCIATION,

A. A. Marzullo, Chairman,
Albert F. Ruehl,
Irving Chew."

Newark, N. J., Master Plumbers Hear Talks on FHA

The Master Plumbers Association of Newark, N. J., heard interesting and instructive talks on the Federal Housing Act at its regular monthly November meeting. Vice-President Jos. Turbett presided at the meeting, and the speakers of the evening were E. W. Heurung, district sales manager of the Power Production and Industrial Division of Johns-Manville; J. S. Witemeyer, Jr., Newark salesman, and Wm. J. McBurnie, sales engineer, both of Johns-Manville. These talks were accompanied by views on the Vis-a-phone furnished by Johns-Manville. Before closing the business session, the members and guests stood for one minute with bowed heads in memory of their late fellow member Past National President Samuel F. Wilson. Following the business session refreshments were served by Johns-Manville.

In the attractive new U. S. Post Office at Minneapolis, 655 Sarco Radiator Traps and 145 Sarco Float-Thermostatic Traps were installed by Magney & Tusler, Inc., Architects, and Katz & Lewis Plumbing Co., Heating Contractors.

In installing the Sarco, the Government knew it was taking no chances, for Sarco was the first thermostatic trap passed by the U. S. Naval Academy Testing Laboratory, and one of the first three traps passed by the U. S. Bureau of Standards.

Sarco Radiator Traps operate noiselessly and economically. They assure long, uninterrupted service. The body is non-corrosive cast bronze. Bellows is seamless phosphor bronze tubing helically corrugated. Valve heads are self-aligning and conical to make line contact with seat.

Other outstanding features explained in our Catalog M 45. Write for a copy.

SARCO CO., INC.

183 Madison Ave., New York, N. Y.

Branches in Principal Cities

Sarco Canada Limited, Federal Bldg., Toronto, Ont., Canada.

NRA Code Activities

Bid Depositories for the Heating, Piping and Air Conditioning Contractors Industry

The following bid depositories for the Heating, Piping and Air Conditioning Contractors division of the Construction Industry have been established, and this information is given here for the benefit of those who may be bidding outside their territory:

OAKLAND, CALIF.: Oakland Chamber of Commerce, Financial Center Building, Oakland, Calif.

Jurisdiction: City of Oakland and Alameda County, Calif.

SAN FRANCISCO, CALIF.: Central Bid Depository, 55 New Montgomery Street, San Francisco, Calif., in charge of R. A. Daddisman, custodian.

Jurisdiction: Inside city limits of San Francisco.

DENVER, COLO.: Colorado Construction League, 814-12th Street, Denver, Colo., in charge of William M. Fuller.

Jurisdiction: Adams, Arapahoe, Clear Creek, Denver, Gilpin, Douglas, Elbert and Jefferson Counties.

WATERBURY, CONN.: Waterbury Builders Exchange, Field Street, Waterbury, Conn.

Jurisdiction: City of Waterbury.

DISTRICT OF COLUMBIA: 2539 Pennsylvania Ave., N. W., Washington, D. C., in charge of W. Stetcher.

Jurisdiction: District of Columbia.

GEORGIA: Domestic Engineers Club, W. R. Puckett, 5 Ivy Street Building, Atlanta, Ga.

Jurisdiction: Entire State of Georgia.

CHICAGO, ILL.: Gray, Hunter, Stenn and Co., C. P. A., 35 East Wacker Drive, Chicago, Ill.

Jurisdiction: City of Chicago and Cook County, Ill.

NEW ORLEANS, LA.: Room 405, 624 Gravier Street, New Orleans, La. Operated by Local Administrative Agency.

Jurisdiction: City of New Orleans and New Orleans County, La.

BALTIMORE, MD.: Baltimore Building Congress, 1109 Fidelity Building, Baltimore, Md.

Jurisdiction: City of Baltimore and Baltimore County, Md.

BOSTON, MASS.: Room 502, 77 Summer Street, Boston, Mass., in charge of Walter H. Oleson.

Jurisdiction Metropolitan Boston Area.

NORTHEASTERN, MASS.: Beverly National Bank, Beverly, Mass.

Jurisdiction: (Cities and Towns) Amesbury, Andover, Beverly, Beverly Farms, Millerica, Boxford, Byfield, Carlisle, Chelmsford, Danver, Dracut, Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill, Ipswich, Lawrence, Lowell, Lynn, Lynnfield, Magnolia, Manchester, Marblehead, Merrimac, Methuen, Middleton, Nahant, Newbury, Newburyport, North Andover, North Reading, Peabody, Rockport, Rowley, Salem, Salisbury, Saugus, Swampscott, Tweksbury, Topsfield, Tynsboro, Wenham, Westford, West Newbury and Wilmington.

SPRINGFIELD, MASS.: Third National Bank and Trust Co., 1391 Main Street, Springfield, Mass.

Jurisdiction: Hampden and Hampshire Counties, Mass.

DETROIT, MICH.: Builders and Traders Exchange, 439 Penobscot Building, Detroit, Mich.

Jurisdiction: City of Detroit and Macomb, Oakland, Washtenaw and Wayne Counties, Mich.

MINNEAPOLIS, MINN.: Builders Exchange, Inc., Minneapolis, Minn.

Jurisdiction: City of Minneapolis and Hennepin, Anoka, Scott, Pine, Chisago, Kanabec, Insanti, Milaca, Sherburne, Benton, Wright, Morrison, Meeker, Stearns, Todd, Pope, Douglas, Otter Tail, Grant, Stevens, Big Stone, Traverse, Wilkin, Swift Kandijohi, Chippewa, LacQui Parle, Carver, McLeod, Renville, Yellow Medicine, Sibley, Redwood, Lyon and Lincoln Counties.

ST. PAUL, MINN.: A. V. Williams, Builders Exchange, St. Paul, Minn.

Jurisdiction: Ramsey, Washington, Takota, LeSeur, Rice, Goodhue, Wabasha, Winona, Olmstead, Dodge, Steele, Waseca, Nicollet, Blue Earth, Brown, Watonwan, Cottonwood, Murray, Pipe Stone, Rock, Nobles, Jackson, Martin, Farribault, Freeborn, Mower, Fillmore and Houston Counties.

KANSAS CITY, MO.: Ernst & Ernst, Accountants and Auditors, Federal Reserve Bank Building, 10th and Grand Streets, Kansas City, Mo.

Jurisdiction: City of Kansas City and Clay and Jackson Counties, Mo., and Johnson* and Wyandotte* Counties. Kansas*.

*Included in Kansas City, Mo. territory until committee in Kansas is formed.

ST. LOUIS, MO.: Missouri Insurance Building, 3908 Olive Street, St. Louis, Mo., under supervision of Local Administrative Agency.

Jurisdiction: City of St. Louis and St. Louis County, Mo.

ASBURY PARK, N. J.: Peter Cooper, Electric Building, Bangs Avenue, Asbury Park, N. J.

Jurisdiction: City of Asbury Park, Monmouth and Ocean Counties, N. J.

JERSEY CITY, N. J.: Trust Company of New Jersey, Peoples Safe Deposit Branch, 357 Central Avenue, Jersey City, N. J.

Jurisdiction: City of Jersey City and Hudson County, and Part of Bergen County, N. J.

NEWARK, N. J.: Federal Trust Company, 24 Commerce Street, Newark, N. J.

Jurisdiction: Essex and Morris Counties, N. J.

ALBANY, N. Y.: National Com. Bank and Trust Co., Trust Department, Albany, N. Y.

Jurisdiction: City of Albany and Albany, Columbia, Greene, Rensselaer, Schenectady, Schoharie and Sarato Counties, N. Y.

BINGHAMTON, N. Y.: Marine Midland Trust Company, Binghamton, New York, in charge of Earl Hardy.

Jurisdiction: Broome, Chenango, Otsego and Tioga Counties, N. Y.

NEW YORK, N. Y.: 1731 Grand Central Terminal, New York, N. Y. Operated by Local Administrative Agency.

Jurisdiction: Greater New York and all of Long Island, N. Y.

UTICA, N. Y.: Utica Chamber of Commerce, George Winslow, Secretary, Utica, N. Y.

Jurisdiction: Fulton, Herkimer, Madison, Montgomery and Oneida Counties.

WHITE PLAINS, N. Y.: People's National Bank & Trust Co., 31 Mamaroneck Avenue, White Plains, N. Y.

Jurisdiction: Orange, Putnam, Rockland, and Westchester Counties, N. Y.

NORTH CAROLINA: North Carolina Heating Bid Depository, 806 Capital Club Building, P. O. Box 889, Raleigh, N. C., in charge of W. F. Morris.

Jurisdiction: State of North Carolina.

CLEVELAND, OHIO: Room 4012, 1227 Prospect Avenue, Cleveland, Ohio. Under supervision of Local Administrative Agency.

Jurisdiction: Cuyahoga and Lake Counties, Ohio.

RHODE ISLAND: Providence Chamber of Commerce, C. J. France, Market Square, Providence, R. I.

Jurisdiction: Entire State of Rhode Island.

NASHVILLE, TENN: Nashville Contractors Association, R. L. Farrar, Secretary-Manager, 311 Chamber of Commerce, Nashville, Tenn.

Jurisdiction: City of Nashville and Cannon, Cheatham, Davidson, DeKalb, Dickson, Giles, Hickman, Houston, Humphries, Lawrence, Lewis, Macon, Marshall, Montgomery, Murray, Perry, Robertson, Rutherford, Smith, Stewart, Sumner, Trousdale, Wayne and Wilson Counties.

NORFOLK, VA.: Kutz and Fentress, Inc., Realtors, 105 West City Hall Avenue, Bankers Trust Building, Norfolk, Va. In charge of William C. Kutz.

Jurisdiction: City of Norfolk and Accomac, Northampton, Mathews, Gloucester, James City, York, Warwick, Elizabeth City, Princess Anne, Norfolk, Nasemond, Isle of Wight, Surrey, Sussex, Southampton and Greensville Counties, Va.

PORTSMOUTH, VA.: Monroe Nash, 311 Professional Building, Portsmouth, Va.

Jurisdiction: City of Portsmouth and that part of Norfolk County west of the eastern branch of the Elizabeth River.

RICHMOND, VA.: Builders Exchange of Richmond, Sixth and Franklin Streets, Richmond, Va., in charge of J. G. Earnest, secretary.

Jurisdiction: Cities of Richmond, Petersburg, Charlottesville and Fredericksburg, Va.

SEATTLE, WASH.: Seaboard Branch, First National Bank of Seattle, corner of 4th Ave. and Pike St., Seattle, Wash. In charge of Mr. Hughes, Collection Dept.

Jurisdiction: City of Seattle and King County, Wash.

MILWAUKEE, WIS.: Construction Industry Credit Bureau, Inc., 709 North 11th Street, 323-335 Marquette Bldg., Milwaukee, Wis. In charge of Edwin Zedler.

Jurisdiction: Milwaukee, Washington, Waukesha, and Ozaukee Counties, Wis.

It is important to note that bidders must deposit their bids in the depository having jurisdiction over the territory in which the job is located.

Rules and Regulations for the Handling of Trade Practice Complaints by the Divisonal Code Authority for Heating, Piping and Air Conditioning Contractors Industry, Inc., Through Their National, Regional, State and Local Trade Practice Complaints Committees

ARTICLE I—GENERAL PROVISIONS

SECTION 1. DEFINITION OF TRADE PRACTICE COMPLAINTS.

By "Trade Practice Complaints" for purposes of these regulations, shall be understood complaints which allege violation of provisions of the Code other than those in Article III of Chapter I and Article VI of Chapter XVI relating to labor provisions, hours of labor and minimum wages, provided that a complaint by a competitor alleging that an employer is violating a labor provision of the Code may be handled by the Trade Practice Complaints Committee.

SECTION 2. DEFINITION OF COMPLIANCE.

The term "Compliance" for purposes of these regulations includes:

(a) The adjustment of complaints on non-compliance by education, findings of fact, and pressure of opinion within the industry;

(b) The adjustment of complaints by conciliation, mediation and arbitration;

(c) The rendition of reports to enforcement agencies of the government in cases where all other means have failed.

SECTION 3. ADOPTION OF RULES AND REGULATIONS.

All Trade Practice Complaints Committees created by the Code Authority shall act in accordance with procedure laid down in rules and regulations which shall be subject to approval by the Code Authority and shall have force and effect unless disapproved by the Administrator. Regional, State or local Trade Practice Complaints Committees may supplement regulations prescribed by the National Trade Practice Complaints Committee or by the Code Authority subject to approval as herein provided. Such supplementary regulations shall deal with local problems in local areas.

SECTION 4. JURISDICTION OVER COMPLAINTS.

Original jurisdiction over a complaint shall rest with the local Trade Practice Complaints Committee in whose geographical area the respondent operates the plant or business in which the alleged violation occurred, unless the Code Authority should decide to advance a particular complaint for consideration by a higher adjustment committee. In the absence of a local Trade Practice Complaints Committee complaints shall be handled by the appropriate State Trade Practice Complaints Committee.

SECTION 5. DISQUALIFICATION OF MEMBERS.

No member of any Trade Practice Complaints Committee shall participate in any way in the adjustment of a complaint in which he is directly or indirectly interested.

SECTIN 6. SELECTION OF MEMBERS OF TRADE PRACTICE COMPLAINTS COMMITTEES FOR TEMPORARY SERVICE.

If, for any reason, either by disqualification or otherwise the number of members of a Trade Practice Complaints Committee available to conduct a hearing on any particular complaint shall be less than three (3), the secretary of such committee shall call such additional member, or members, as will bring the total membership up to at least three.

SECTION 7. RECORD OF COMPLAINT,.

Every Trade Practice Complaints Committee shall keep a complete record of every complaint filed with it by numbering each complaint consecutively in the order in which filed with such committee, together with the name of the committee, and the date on which such complaint was filed. All papers filed in connection with a given complaint shall bear the same serial number and shall show the date of filing. A docket or journal record shall be kept of each complaint which shall show in summary form the history of the case including:

(a) Filing of all papers.
(b) Filing of hearings.
(c) Rendering of decisions.
(d) Final adjustment of complaint.
(e) Forwarding of case to higher adjustment Committee.
(f) Any other important procedure.

ARTICLE II—PROCEDURE

SECTION I. ACCEPTABLE COMPLAINTS.

Any complaint that sets forth facts which, if true, constitute a violation of the Code shall be acceptable. Anonymous complaints will be acted upon in the discretion of the Committee. Complaints to be acted upon should be in writing, preferably on the N.R.A. complaint form, copies of which may be obtained at all except fourth class Post Office or at Local, State or National Trade Practice Complaints Committee Offices and to contain the following information:

(a) Full name of the complainant—address of the complainant.

(b) Name and address and place of business of respondent.

(c) A short and plain statement of the grounds of the complaint including reference to the Article and Section of the Code concerning the alleged violation.

(d) A clear and concise statement of the facts upon which the petitioner relies in sustaining the complaint.

(e) The complaint should be sworn to before a Notary whenever practicable. Unsworn complaints may be received and acted upon.

SECTION 2. DEFICIENT COMPLAINTS.

If a complainant fails to clearly state sufficient facts to establish a violation, but does state sufficient facts to raise the presumption of violation, the complainant shall be advised wherein he failed to set forth a violation, and shall be requested to furnish additional information.

SECTION 3. COMPLAINTS BASED ON MISUNDERSTANDING.

If a complaint is based upon fact, but does not constitute a violation of the Code, and does not violate the spirit and intent of N.R.A., an acknowledgment with explanation shall be immediately sent to the complainant.

SECTION 4. COMPLAINTS WHICH VIOLATE THE SPIRIT BUT NOT THE LETTER OF THE LAW.

Where a complaint violates the spirit and intent of N.R.A. or of the Code, but does not constitute a technical violation of the Code, an explanatory letter shall be sent to the complainant and to the respondent, and a report of the facts shall be made to the Code Authority.

SECTION 5. COMPLAINT INVOLVING JURISDICTION OR CONFLICT OF CODES.

Any complaint which involves a conflict of codes or a question of jurisdiction or other inter-industry problem, as to which there is room for an honest difference of opinion, shall be referred by the Trade Practice Complaints Committee to the Code Authority for action, and the adjustment of the case shall be stayed until the reply from the Code Authority is received. The Code Authority shall in all such cases follow established procedure as laid down in the By-laws with respect to inter-industry problems.

SECTION 6. COMPLAINT INVOLVING AN INTERPRETATION.

Any complaint involving an interpretation of the Code shall be referred by the Trade Practice Complaints Committee to the Code Authority for action, and the adjustment of the case shall be stayed until a reply from the Code Authority is received. The Code Authority shall dispose of the matter in accordance with established procedure laid down in the By-laws with respect to interpretations of the Code.

SECTION 7. CONFIDENTIAL CHARACTER OF COMPLAINTS.

The name of the complainant shall be kept confidential. The name of the respondent and the fact that a complaint has been filed against him shall be kept confidential within the Trade Practice Complaints Committee until the case is forwarded to N.R.A. The facts disclosed by an investigation shall not be revealed at any time.

SECTION 8. PRIVILEGE OF APPEAL TO N.R.A.

Official authorization of a Complaint Committee does not give exclusive jurisdiction over compliance problems. Nothing herein shall prevent any complainant at any time from appealing to the N.R.A., which shall have authority, in its discretion, to refer such complaint to a higher agency of the Trade Practice Complaints Committee which has a representative of the National Recovery Administration as one of its members, or to the Divisional Code Authority for Heating, Piping and Air Conditioning Industry Contractors, Incorporated, or shall handle the matter direct.

SECTION 9. FORM AND CHARACTER OF FIRST NOTICE TO RESPONDENT.

When a complaint has been accepted and a serial number

● Long experience gives us reason to feel that once you try JARECKI FITTINGS you will find them the kind of fitting that meets your every requirement.

You will like their EXTRA measure of sturdiness . . . the completeness of the line . . . the accurate, clean-cut threads. Write for information.

●

JARECKI MFG. CO.
Erie, Pa., U. S. A.

has been assigned to it, the local or state Trade Practice Complaints Committee shall send by mail to the respondent the following:

(a) A short and plain statement of the grounds of the complaint including a reference to the Article and Section of the Code, together with a request for reply from respondent within five (5) days after receipt of notice.

(b) Notification of a hearing on the official form approved by the National Trade Practice Complaints Committee.

(c) A copy of "information for persons charged with violations of the Heating, Piping and Air Conditioning Contractors Division of the Construction Industry Code." (This printed statement must first be approved by N.R.A. Until such approval is secured the usual statement of this nature supplied by Compliance Division, N.R.A., Washington should be used.)

(d) A copy of the Code.

SECTION 10. SECOND NOTICE TO RESPONDENT.

If no answer is received from the respondent within the time designated, a second notice similar in content to that described in Section 9 above shall be sent by registered mail, return receipt demanded. (This original registry receipt must be preserved and must accompany the papers if the case is appealed to a higher Adjustment Agency.)

SECTION 11. RESPONDENT'S ANSWER.

(a) If the respondent fails to answer the FIRST or SECOND notice within the time indicated, or if he indicates his unwillingness or lack of intention to comply or of making restitution, the complaint shall be referred, with recommendations, to the National Committee.

(b) If the respondent denies that facts are as alleged, or fails to satisfy the agency that he is not violating the Code, the complaint shall be referred, with recommendations, to National Committee.

(c) If the respondent admits the facts but takes issue as to the meaning of the Code, or asserts that he is not subject to the Code, or there is a conflict of Codes, the complaint shall be handled as indicated in Sections 5 and 6 above; provided that on receipt of an answer supporting the complaint by the Trade Practice Complaints Committee from the Code Authority as provided in sections 5 and 6 above, the local or state Trade Practice Complaints Committee shall refer the complaint, with recommendations, to the National Committee.

(d) If the respondent admits the violation alleged but furnishes satisfactory evidence that he is now complying, and agrees to comply in the future, and submits evidence of equitable restitution for past violations, the local or state Trade Practice Complaints Committee shall notify the complainant and the respondent that the complaint has been filed as adjusted; provided, further, that no respondent who has violated provisions of the Code and the Act can escape the full penalties of the Act through any such adjustment of a violation, except as the Committee in its discretion may deem advisable.

SECTION 12. INFORMAL INVESTIGATION AND ADJUSTMENT.

Except in case of unusual circumstances, no complaint which has been accepted for adjustment shall be presented for formal hearing without prior effort at informal adjustment. Such efforts at informal adjustment may be made through resort to the telephone, to the mails, to mediation through a third person, or in any other manner deemed wise.

SECTION 13. PROCEDURE AT FORMAL HEARING.

(a) Both parties shall have the right to appear in person and be heard or to file statements and to present other evidence to the Trade Practice Complaints Committee. The Trade Practice Complaints Committee shall receive such evidence as it deems competent without regard to legal rules of evidence.

(b) All statements shall be taken down verbatim, or a summary prepared, which summary shall be signed by the witnesses wherever possible. Refusal on the part of the respondent to make a statement or to sign a statement should be noted in the records of the case.

(c) Announcement shall be made to both parties at the time of the hearing that either party has the right to take the case at any time to the National Trade Practice Complaints Committee.

(d) At all stages of the proceedings no opportunity shall be overlooked to adjust the case.

SECTION 14. REFERENCE OF CASE TO NATIONAL TRADE PRACTICE COMPLAINTS COMMITTEE.

After the Trade Practice Complaints Committee which handles the original complaint has exhausted all reasonable efforts at adjustment through informal procedures and formal hearings, the case shall be referred to the National Trade Practice Complaints Committee with a recommendation for further action. On all such appeals of cases the data described below shall be included.

SECTION 15. DOCUMENTS TO ACCOMPANY NOTICE OF APPEAL.

(1) All correspondence, evidence and statements and other particulars of the case.

(2) Report signed by the Secretary or member of the Committee showing that the notice and other papers, provided in Section 9 hereof, was sent to the respondent, and if he did not answer the FIRST notice a SECOND notice was sent as provided in Section 10 hereof, together with the original post office registry receipt.

(3) Summary of the facts if the Committee deems a summary necessary to a proper understanding of the case.

(4) The recommendations of the Trade Practice Complaints Committee and of any other Committee that handled the case.

(5) Summaries of the respondent's statements before the Agency that has handled the case, and any written statement submitted by it.

SECTION 16. PROCEDURE BEFORE THE NATIONAL TRADE PRACTICE COMPLAINTS COMMITTEE.

(a) Immediately upon receipt of papers of appeal, the Secretary of the National Trade Practice Complaints Committee shall either order a rehearing or notify the respondent that unless the case is adjusted within ten (10) days from the date of the notice, the complaint will be sent to N.R.A. The respondent shall also be notified that he may appear before the Committee, if he so desires, or furnish additional written statements.

(b) If no adjustment of the complaint is reached within the time limit set as provided under (a) above, the National Trade Practice Complaints Committee may at any time thereafter forward the papers and records of the case to the Code Authority for references to N.R.A.

(c) In the event that the National Trade Practice Complaints Committee decides to forward the case to N.R.A. it shall transmit the following data:

(1) The original complaint.

(2) A copy of the complaint or a digest of the complaint.

(3) All previous correspondence on the case.

(4) All original evidence, including all affidavits (if any) and all findings of fact by the Trade Practice Complaints Committee.

SECTION 17.

Any interested party shall have the right of complaint to the Divisional Code Authority and of a prompt hearing and decision in respect of any decision, rule, regulation, order or finding made by such authority or its committee or agencies, under such rules or regulations as may be pre-

scribed therefore and the decision of said Authority thereon may be appealed by any interested party to the Construction Appeals Board.

SECTION 18.

The Construction Appeals Board shall hear and determine the appeals referred to in the above section and shall likewise be empowered to determine, in the event of a conflict btween the provisions of the various Chapters of the Construction Industry Code applicable to specific divisions or subdivisions of the Industry, which of such Chapter provisions shall govern.

SECTION 19.

Any interested party shall have the right of appeal to the Administrator, under such rules and regulations as he may prescribe, in respect of any decision, rule, regulation, order or finding made by the Construction Code Authority or the Construction Appeals Board.

SECTION 20. REPORTS.

Trade Practice Complaints Committees shall make a report of all activities to the National Trade Practice Complaints Committee periodically as requested, and the National Trade Practice Complaints Committee shall prepare a report of its own upon forms which N.R.A. (Compliance Division, Washington) will supply for this purpose. Such reports shall be in triplicate so that a complete report of all activities may be submitted to the proper agency of the National Recovery Administration, pursuant to such rules and regulations as the Administrator may prescribe.

Plan for Handling Trade Practice Complaints

Plan for Handling of Trade Practice Complaints by the Divisional Code Authority for Heating, Piping and Air Conditioning Contractors Industry, Inc., Through National, Regional, State and Local Trade Practice Complaints Committees

THE National Trade Practice Complaints Committee shall be composed of five persons selected by the Divisional Code Authority for the Heating, Piping and Air Conditioning Contractors Industry, Inc., from the members of this division of the Construction Industry.

The selection made by the Divisional Code Authority at a meeting in Chicago, Ill., August 15th, 1934, is:

WALTER KLIE, 6107 Carnegie Ave., Cleveland, Ohio, Chairman.

MAURICE J. CHAGNARD, 450 South Fifth St., Louisville, Ky.

GEORGE H. DICKERSON, 162 N. Clinton, St., Chicago, Ill.

J. I. LYLE, 850 Frelinghuysen Ave., Newark, N. J.

THOMAS O'CALLAGHAN, 13 Hawkins St., Boston, Mass.

An administration member of the Construction Code Authority designated by the Administrator, or his proxy appointed by the Administrator, shall be a member of this committee, without a vote, but with a veto power subject to review by the Administrator.

This committee shall be empowered to establish such subdivisional, regional, state or local Trade Practice Complaint Committees as it may deem necessary and to use the available facilities of the Heating, Piping and Air Conditioning Contractors National Association.

The Nationl Trade Practice Complaints Committee shall appoint an Executive Secretary, who shall be charged with the responsibility for all routine correspondence and records. It may appoint a legal advisor who need not be a member of the committee.

This committee shall not incur expenses of any kind in excess of amounts provided for its support in the budget of the Divisional Code Authority.

SUB-DIVISIONAL, REGIONAL, STATE OR LOCAL COMMITTEES

The purpose of these committees is to bring facilities for handling trade practice complaints into the closest possible touch with the members of the division. In large centers of population local committees will be appointed. State committees will act in "open spaces" not covered by local committees and in small states the state committee will act for the entire state without the appointment of local committees. In the Mountain States and the South West initial operation may be with Regional Committees until the volume of work to be handled warrants creation of State Committees.

Sub-Divisional Committees are provided if needed for special study of any particular problem of procedure or enforcement.

Procedure of handling Trade Practice Complaints by all committees will be in accordance with the Rules and Regulations for the Handling of Trade Practice Complaints by the Divisional Code Authority for Heating, Piping and Air Conditioning Contractors Industry, Inc., through their National, Regional, State and Local Trade Practice Complaints Committees attached hereto.

New York Chapter, A. S. H. V. E., Opens Season with Good Attendance

Addresses on the Federal Housing Administration, English practice in heating and ventilating, and one on the society's activities, were the three features of the first meeting of the 1933-1934 season of the New York Chapter, American Society of Heating and Ventilating Engineers, held at the Building Trades Employers Club in New York City, October 15. Julian M. Gerard, regional director for the State of New York of the Better Housing Division, Federal Housing Administration, was the speaker who discussed the government's modernizing program, while National President C. V. Haynes told the members of their society's activities.

One manufacturer of heating equipment received 2,749 applications for loans on FHA provisions in 30 days, according to Mr. Gerard, in his talk on the Federal Housing Administration. The same manufacturer, Mr. Gerard said, reports a 50 per cent gain in the number of loans each week when compared with the previous week. The Federal Housing Administration is sending out 30,000 books per day, explaining the features of the Act to building owners, contractors and others, and the results are just beginning to show up. The average of loans made so far has been $443, made to home owners with an average income of $2,711, and over a period averaging 26 months.

President C. V. Haynes reviewed the history of the New York Chapter, and suggested that the Chapter should be proud of its honor roll of past presidents of the National Society who were members of the local chapter. He also spoke of the activities and status of the society during the past year, including the Research program, and particularly mentioned the splendid work being done by the Guide Publication Committee. President Haynes said that in his opinion 12,000 "Guides" would be distributed, as compared with 8,000 last year.

Ninety members attended the meeting, 54 of which were present at the dinner which preceded the meeting.

Cascade Locks, Oreg.—T. R. Campbell and M. L. Campbell have opened a plumbing and heating business under the name of the Cascade Locks Plumbing Company.

Thawing—

(Continued from Page 45)

be taken, however, to keep the current value within safe limits. Continually check connections and joints to see that they are not overheating. Also be careful not to put a severe overload on your welding machine for too long a continuous time.

Brass and copper pipe are better conductors than steel and iron and will consequently require higher current or longer time. Reports indicate that 200 to 500 amperes are used, depending upon the local conditions, conditions of joints, etc.

Lead pipe should not be subjected to such high current due to the danger of melting away at the joints and connections. Users experienced in lead pipe thawing recommend no more than 150 amperes under the most favorable conditions, with 100, or even 75 amperes recommended in most cases, especially in dry soil.

Special packing materials in the pipe joints also affect the current and time required on a job. Packings slow up the thawing operation, as a rule. It is reported that manufacturers of these special packings are taking special steps to provide for electrical thawing by the use of special inserts when the joint is made. When brass bolts are used to connect flanged, packed joints, the thawing operation is easier than when iron bolts are used.

The attached field reports have been submitted by users of arc welders for thawing.

FIELD REPORT ON PIPE THAWING WITH ARC WELDER
Case No. 1

KIND OF JOB: 50 ft. frozen section of 6 in. water main. Clamped joints, lead calking.

COMPLETE CIRCUIT: Water main and cables, 175 ft.

LENGTH AND SIZE OF CABLES: 125 ft. of No. 00.

METER READINGS WHILE THAWING: 400 amperes (voltage not reported).

TIME REQUIRED TO THAW OUT: Approximately 4 hours.

MACHINE USED: 300 ampere Gasoline Engine Driven Arc Welder.

REMARKS: User reports that this was one of many jobs handled for Water Companies in towns located in his vicinity in Pennsylvania.

FIELD REPORT ON PIPE THAWING WITH ARC WELDER
Case No. 2

KIND OF JOBS 500 ft. cast iron water main with lead calked bell joints.

COMPLETE CIRCUIT: Pipe, cable and additional pipe used in lieu of cable, 1,000 ft.

LENGTH AND SIZE OF CABLES: 200 ft. No. 00 cable supplemented by 300 ft. 1½ in. pipe.

METER READINGS WHILE THAWING: 375 amperes, 15 volts.

TIME REQUIRED TO THAW OUT: 2 hours, 45 minutes.

MACHINE USED: 300 ampere Gasoline Engine Driven Arc Welder.

REMARKS: User reports the local water company had employed 4 men for 4 days, digging holes down to the main at 50 ft. intervals and keeping fires in the holes, without getting any results. The street had been recently opened and one house had been without water for ten days. In the same time, during one week, he thawed out 20 private lines also, each job usually requiring only 10 minutes to thaw out. As a result of service rendered on this 4 in. main, he is getting all the local water company's welding work. Being caught with insufficient cable along for this job, he used 1½ in. pipe to complete the circuit.

FIELD REPORT ON PIPE THAWING WITH ARC WELDER
Case No. 3

KIND OF JOB: 200 ft. 2½ in. steel pipe with threaded joints.

COMPLETE CIRCUIT: Pipe and cables 430 ft.

LENGTH AND SIZE OF CABLES: 230 ft. of No. 00.

METER READINGS WHILE THAWING: 400 amperes (voltage not reported).

TIME REQUIRED TO THAW OUT: Approximately 3½ hours.

MACHINE USED: 300 ampere Gasoline Engine Driven Arc Welder.

REMARKS: User reports that this job was done at night with the temperature around 25 deg. Fahr. below zero and that the water line had about 5 ft. drop with a head of only 3 ft.

FIELD REPORT ON PIPE THAWING WITH ARC WELDER
Case No. 4

KIND OF JOB: Two 150 ft. lengths, of ¾ in. tubing (one at each of two adjoining houses).

COMPLETE CIRCUIT: Cables, ¾ in. copper tubing, two lead goosenecks at the main, and main consisting of 10 in. Universal pipe, made a total of 650 ft.

LENGTH AND SIZE OF CABLES: 300 ft. No. 0 cable doubled.

METER READINGS WHILE THAWING: 375 amperes, 10 volts.

TIME REQUIRED TO THAW OUT: 17 minutes.

MACHINE USED: 300 ampere Gasoline Engine Driven Arc Welder.

REMARKS: User reports that the copper tubings were both frozen full length because ice was found at the meters, at the street boxes and at the goosenecks. Frost line at the time was 4 ft. deep while the tubing was only 2½ ft. deep. Double cables were used because No. 0 heated up under the load and he had nothing heavier available at the job.

FIELD REPORT ON PIPE THAWING WITH ARC WELDER
Case No. 5

KIND OF JOB: ¾ in. iron lead-in pipe (Three houses involved).

COMPLETE CIRCUIT: Cables, lead-in, and main 150 ft.

LENGTH AND SIZE OF CABLES: 100 ft cable with ⅝ in. diameter copper.

METER READINGS WHILE THAWING: 300 amperes, 25 volts.

TIME REQUIRED TO THAW OUT: 30 minutes.

MACHINE USED: 300 ampere Gasoline Engine Driven Arc Welder.

REMARKS: User reports that freezing had cut off service at all three houses. When the current began to take effect, water started dripping first at House No. 1 and, after it had attained full force, it started to run at No. 2, followed by water at House No. 3. At Nos. 2 and 3 the frozen section was in the "Y," as indicated in the sketch. He also reports that his experience shows that you might just as well shut down the machine as soon as water begins to run, as the thawing effect of the current is then eliminated and the water itself will finish the job. He also claims that after a line has been thawed out, if the openings are closed and it is allowed to freeze again, it seems to take three times as long to thaw it again. He makes it a point to advise customers to leave the water running in a small stream continuously as long as there is frost in the ground at pipe depth.

Heating Equipment Needs Care in All Seasons

The annual costs for running a heating system can be materially reduced if proper attention is given to operation and maintenance when the boiler or furnace is idle, as well as throughout the period of operation during the heating season. Particular attention should be given the boiler or furnace in the spring when it is taken out of service, so that severe corrosion does not occur during the summer months. In the fall when the system is placed in service again, particular attention should be paid to the various important appurtenances of the heating system.

Calnan and Ads—

(Continued from Page 34)

intelligent and proper fabrication and installation by men trained and experienced and responsible to proper authorities, to produce results that are not only satisfactory to the purchaser, but that will safeguard his health, needs restating and emphasizing.

Sometimes it takes a catastrophe like the outbreak of amebic dysentery, or some poisoning in a hospital, due to good fixtures with faulty installation, to again awaken us.

The industry owes it to the health of the public and it owes it to itself to keep driving this fact home.

Methods of distributors of materials who sell directly to consumers and leave them to the mercy of ignorant, faulty and dangerous installation, should never have been dignified by imitation, born in the desperation of diminishing business available, but should have been handicapped by keeping the facts before the buying public.

I read with a great deal of interest in your October issue the splendid address of John J. Calnan, President of the National Association of Master Plumbers, before the Central Supply Association.

Every manufacturer, wholesaler and contractor should read it carefully; it covers the situation thoroughly.

A most important bit of evidence that the manufacturers are again alert to the best interest of the public and themselves are the advertisements of the Standard Sanitary Mfg. Co. appearing in daily newspapers, some of which you reprinted in your November issue of DOMESTIC ENGINEERING.

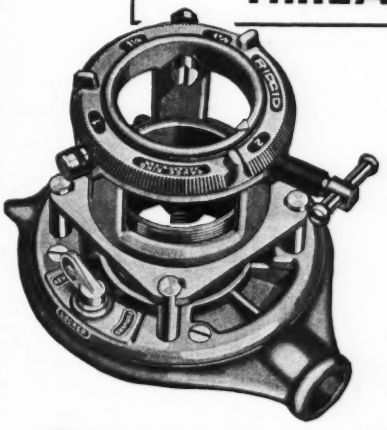
They very strongly and convincingly present to the public the importance of proper and skillful installation by qualified master plumbers, to insure satisfactory operation and to safeguard health.

This type of advertising, if quite generally and consistently followed by manufacturers and wholesalers and contractors, both in the plumbing industry and the heating industry, will do more toward keeping the business in the hands of those manufacturers who deserve it, by protecting the public, and away from those who are willing to exploit the public for quick sales, regardless of the resulting troubles and dangers to health.

(Signed) WALTER KLIE,*
Cleveland, Ohio.

*Mr. Klie is a past president of the Heating, Piping and Air Conditioning Contractors National Association.

7 REASONS WHY You'll Like The New RIDGID POSTER THREADER



1. Direct drive over chasers — no wobble, greater precision.
2. Full-floating posts carry no load, simply taper threads. Not riveted, easily replaced.
3. Chaser locks enclosed—can't be damaged.
4. Ratchet lever snaps into exact positions. Sets at "Locked" position for solid die.
5. Workholder sets to size mechanically—put on pipe, tighten with one screw.
6. Alloy tool steel chasers interchangeable—fit any poster type threader.
7. Tool weighs only 12 lbs. Rugged strength, rustproof, no sharp edges.

No. 1R, 1" to 2", 4 sets of chasers, 1 or 2 handles. No. 1, plain die, 1" to 2", 4 sets of chasers, 2 handles. There are now 11 threaders in the complete line, meeting all needs to 2" threading. Ask your Jobber.

THE RIDGE TOOL CO., ELYRIA, OHIO, U. S. A.

RIDGID PIPE TOOLS

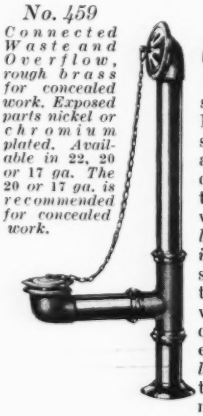
TO ASSURE YOUR CUSTOMERS AN

EXTRA

MEASURE OF

QUALITY

No. 459
Connected Waste and Overflow, rough brass for concealed work. Exposed parts nickel or chromium plated. Available in 22, 20 or 17 ga. The 20 or 17 ga. is recommended for concealed work.



THE moment you specify **American** Brass Goods you assure your customers an *extra* measure of quality; you assure them brass goods which will give them *long* service and *lasting* satisfaction. The stamp of approval they place on your work, as a consequence, is bound to establish you as the *leading* plumbing contractor in your community.

Recommended for the *better* bath tub installation are the No. 1042 **American** Built in Bath Fixture and No. 459 **American** Connected Waste and Overflow. Perfect specimens of **American** quality and **American** superiority. Order these and your other brass goods from your jobber today.

AMERICAN SANITARY MFG. CO.
ABINGDON ILLINOIS

No. 1042
Built-In Bath Fixture. Can be furnished with china handles and flanges, as illustrated or with all-metal handles and escutcheons.

SPECIFY

★ American ★
BRASS GOODS

Favors Stress on Contractor's Service, Not on Price

To the Editor:

Referring to pages 40 and 41 of your November issue of Domestic Engineering, I am very glad to see that such a large manufacturer recognizes the advantage of stressing proper installation by properly qualified contractors rather than the price angle.

Personally, I do not like the advertising of prices particularly as regards completed installations.

It is essential for *customer satisfaction* that the customer should have a first class and properly engineered installation of only superior materials and workmanship, such as is guaranteed by the employment of a duly qualified, responsible contractor who stands behind his work unqualifiedly.

The writer is a firm believer in the doctrine that advertisements covering plumbing installations such as page 40 should stress Master Plumbing Contractors and that advertisements covering purely heating systems should stress Master Heating Contractors. This is a position I have maintained in connection with my alliance with the Plumbing and Heating Industries Bureau.

Closer cooperation of manufacturer and contractor in seeing that the customer gets prime goods properly installed is *bound* to result in better satisfied customers and re-act beneficially for all concerned.

(Signed) George H. Dickerson,*
Mehring & Hanson Co., Chicago.

*Mr. Dickerson is a director of the Heating, Piping and Air Conditioning Contractors National Association.

Encourage Public to Use Best Retail Outlets

To the Editor:

Frankly, I am not qualified to give you an answer pertaining to your letter of the 6th as I have not kept up with the editorial comments in your publications; however, from an experience standpoint, I believe that the manufacturers will get further with their advertising by selling the outlets rather than their products.

To elaborate on this, I mean that with the price complex in merchandising advertisements, the idea as to where their products can be obtained is never completely sold to the public. If you will study the manufacturer's advertisements you will note that the price angle plus their own name predominate. This is as it should be but to help the merchandising outlets some efforts should be made toward selling the outlets. It is my contention that too many times the public does not think of the legitimate master plumbers as the merchandising outlet for their products, but from the advertisement of price they think in terms of railroad salvage houses, used material outlets, etc., as to where they can get these materials at greatly reduced prices.

In other words, if the manufacturer is honestly interested in the master plumber as his outlet then he should do some selling in his advertising in the interest of the master plumber. Of course, if the manufacturer is going to run only two or three ads and then stop the results will be disappointing to all concerned.

I do not know if this will answer your question but it is at least my idea on the subject of what the manufacturer's advertisement should cover. Of course, it is my opinion that the manufacturer is never interested after the sale is made.

(Signed) J. A. KIESLING,*
Houston, Tex.

*Mr. Kiesling is a director of the Heating, Piping and Air Conditioning Contractors National Association.

Offers Way to Recover Ground which has been Lost

TO THE EDITOR:

I wish to congratulate you on your editorial comment concerning the new advertising policy of certain manufacturers and wholesalers in which the importance of proper installation is stressed, regardless of the merit of the merchandise installed.

Such a movement is highly significant and should be commended by the trade at large for it will mean much to the established methods of distribution of plumbing materials and make better and more sanitary installations for the purchaser as well as better satisfied users for the manufacturer.

During the struggle for business the last few years, many industries have sacrificed quality and merit for price and the buying public at large, in order to make their scant dollars go farther, in many instances, have bought price instead of quality, generally to find in the end that no saving had been made.

This same idea has also existed very largely with the purchasers of plumbing and heating materials. However, they too have realized that such practice is costly, that inferior materials, along with improper installations, have caused jobs to turn out unsatisfactorily and in many cases harmfully both to health and property. Many such cases are already coming to light and more will be discovered from time to time to prove that cheap price has in reality turned out to be more expensive than quality and merit.

This "buyer misconception" is the result of poor salesmanship on the part of the installer and manufacturer of plumbing material, who together over a period of time took it for granted that the buying public knew that good materials must necessarily be installed by competent mechanics. Therefore, they ceased to tell the world while a new economic order was being ushered in. Consequently the buying public was receptive to such slogans as "Roll your own and save the difference," "Buy plumbing materials direct, install it yourself and save the difference" (catchy expressions for times of depression). A lot of ground has been lost, a lot of poor material has been sold, a great many poor installations have been made, nevertheless, there is still a market for quality and merit, and as business improvement is realized the buyer will gradually turn to quality buying, provided we that have it are able to tell the world of our merits.

A movement long past due is the one started by the manufacturer and wholesaler to show the importance of proper installations along with first-class materials.

When the public once realizes the danger of improper installations, it will be about as much interested in installing plumbing and heating fixtures as "operating on itself for appendicitis."

(Signed) CLIFFORD F. SMITH,*
Sioux Falls, S. D.

*Mr. Smith is State Executive for NRA administration of the plumbers' code and also secretary of the South Dakota Association of Master Plumbers.

Area Agreement—

(Continued from Page 30)

hourly limitations provided in this agreement in the performance by him of manual labor or mechanical operations.

SECTION 5. COMPLAINTS. No member in the Region shall dismiss any journeyman or apprentice for making a complaint or giving evidence with respect to an alleged violation of any provision of this agreement or of any Code of Fair Competition approved under Title I of the National Industrial Recovery Act.

SECTION 6. REFUSAL TO VIOLATE LAWS. No member in the Region shall terminate the employment of a journeyman or apprentice for refusal to violate State laws or Municipal ordinances.

SECTION 7. REBATES. Members in the Region, journeymen and apprentices or their agents, shall not accept or give, directly or indirectly, any rebates on wages.

SECTION 8. LAWS. (a) No provision of this agreement shall supersede any State or Federal law which imposes more stringent requirements as to standards of hours of labor, rates of pay, and other conditions of employment provided by this agreement.

(b) Members in the Region, journeymen and apprentices shall comply with State Plumbing Laws and Municipal Plumbing Ordinances.

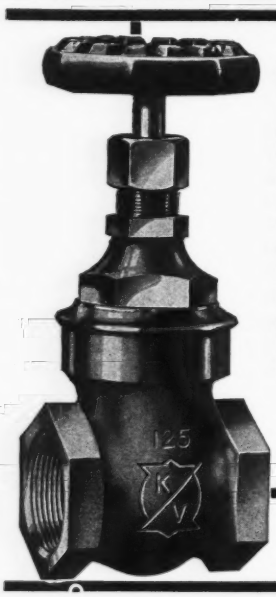
ARTICLE V.—BARGAINING.

Journeymen and apprentices shall have the right to organize and bargain collectively through representatives of their own choosing and shall be free from the interference, restraint or coercion of their employers or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection; and no journeyman or apprentice and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing or assisting a labor organization of his own choosing; and members in the Region shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment, approved or prescribed by the President.

ARTICLE VI.—PRESIDENTIAL POWER.

This agreement and all the provisions thereof are expressly made subject to the right of the President, in accordance with the provisions of subsection (b) of Section 10 of the Act, from time to time to cancel or modify any order, approval, license, rule or regulation issued under Title I of the Act and specifically, but

KENNEDY
Standard Bronze Gate Valve



YOUR insurance against leaky threads or stuffing boxes, sticking stems, poorly seating discs, and other valve troubles. You will find Kennedy Valves operate easily, close tightly, and give permanently satisfactory service.

The Kennedy Valve Mfg. Co.
Elmira, N. Y.

Fig. 27

NYE TOOLS

NYE SOLID MALLEABLE STOCK
With Adjustable Guide

Capacity ⅛" to 1" Pipe

This stock regularly furnished with Nye No. 1 Solid Skip Tooth Threaded Throat Dies. Will take solid 2½x2½ Square Dies of any make.

The die fits snugly and is held securely to the stock by two screws, assuring perfect alignment with the pipe. Die may be removed by partially loosening the screws and sliding it out sideways.

In addition to pipe ⅛ to 1", the compact adjustable guide will accommodate a 1" coupling when the operator finds it necessary to thread short nipples. Will also handle bolts from ¼ to 1".

ASK YOUR JOBBER

***The* NYE Tool & Machine Works**
4120-30 Fullerton Avenue, Chicago, Ill., U. S. A.

without limitation, to the right of the President to cancel or modify his approval of this agreement, or any conditions imposed by him upon such approval.

ARTICLE VII.—MODIFICATION.

The provisions of this agreement, except as to provisions required by the Act, may be modified on the basis of experience or change in circumstances, such modification to be based upon application to the President and such notice and hearing as he shall specify and to become effective on his approval.

ARTICLE VIII.—ADJUSTING BOARD.

Any complaints of violations of this agreement shall be subject to investigation by an adjusting board composed of two (2) members in the Region, two (2) journeymen, and if necessary one disinterested person selected by the four members of the board. All activities of this board shall be subject to review, veto, amplification and modification by the board or boards provided for in Article IX hereof.

ARTICLE IX.—VIOLATIONS.

Any complaints or violations of this agreement shall be subject to investigation by such board or boards as are established by the National Industrial Recovery Board for that purpose for the Division defined herein pursuant to the provisions of Section 1, Article III, of the Code of Fair Competition for the Construction Industry.

ARTICLE X.—PERIOD OF AGREEMENT.

SECTION 1. This agreement shall become binding upon the signatories hereto and their principals the second Monday after the President has approved such agreement as provided by said Act and Code. Thereupon the standards of hours of labor, wages and other conditions of employment herein contained shall affect and apply to all members in the Region and their journeyman and apprentice employees as provided in said act or code and the order of approval.

SECTION 2. This agreement shall terminate on September 1, 1935, or on the date the Code of Fair Competition for the Plumbing Contracting Division of the Construction Industry becomes ineffective, whichever is sooner.

In announcing President Roosevelt's approval of this area agreement Robert J. Barrett, executive director of the Code Authority of the Plumbing Contracting Division, states that this agreement affects approximately 181 journeymen and apprentices and 196 master plumbers in Colorado.

Mr. Barrett adds: "It is recommended in all areas where a majority of the industry feels that our Code scale of wages should be modified, that the members of the Industry follow the procedure necessary to effect a labor agreement for their section. This Denver agreement is the first in our industry—several others are now being formulated for other sections. Still other territories are complaining about the wage rates but they are doing nothing about it. Why?"

Women's Activities

By DOROTHY EDWARDS

President Mrs. Robert Liss Announces National Women's Auxiliary Cabinet

Mrs. Robert Liss, president of the Women's Auxiliary to the National Association of Master Plumbers, has just announced the appointment of directors of this organization. With this announcement it is possible to give the entire composition of the official family as follows:

NATIONAL OFFICERS

Mrs. Robert Liss, President, 1919 Belmont Avenue, Chicago, Ill.

Mrs. F. C. Kuetemeyer, 1st vice president, 3408 Downer Street, Milwaukee, Wis.

Mrs. O. G. Johnson, 2nd vice president. 1517 6th Street, S. E., Minneapolis, Minn.

Mrs. Geo. Doench, 3rd vice-president, 3128 Fairfield Avenue, Cincinnati, Ohio.

Miss Esther Schmeisser, corresponding secretary, 1713 Sherman Avenue, Evanston, Ill.

Mrs. J. Miller Heidweiler, treasurer, 526 Hamilton Avenue, Trenton, N. J.

Mrs. E. D. Hornbrook, historian, 4052 Hyde Park Avenue, Kansas City, Mo.

Mrs. Rose Friend, Chaplain, 2925 Farwell Street, Milwaukee, Wis.

Mrs. Ed. Frank, auditor, 3131 Reading Road, Cincinnati, Ohio.

Mrs. H. H. Diedesch, parliamentarian, 5100 Windsor Avenue, Chicago, Ill.

PAST NATIONAL PRESIDENTS

Mrs. John L. Knight, Shore Road, Port Washington, L. I., N. Y.

Mrs. Jacob Brenner, 69 E. Philadelphia Ave., Youngstown, Ohio.

Mrs. E. D. Hornbrook, 4062 Hyde Park Avenue, Kansas City, Mo.

Mrs. W. E. McAndrew, 301 W. Frances Avenue, Tampa, Fla.

Mrs. J. Preston Perham, 214 Spring Street, West Roxbury, Mass.

NATIONAL DIRECTORS

Mrs. J. Preston Perham, chairman, 214 Spring Street, Roxbusy, Mass.

Mrs. Maney J. Feeney, 6128 Jefferson Street, Philadelphia, Pa.

Mrs. A. R. McGonegal, 200 Clarendon Avenue, Clarendon, Va.

Mrs. I. E. Henderson, 1815 E. 31 Street, Kansas City, Mo.

Mrs. F. R. Fanning, Winter Park, Fla.

Hrs. H. O. Green, 1705 South Boston Avenue, Tulsa, Okla.

Mrs. E. B. Clayton, 1575 Madison Street, Denver, Colo.

Mrs. L. J. Evans, 55 N. Claybrook Street, Memphis, Tenn.

Mrs. Albert Hayman, 2500 Washington Street, Wilmington, Del.

Mrs. R. G. Schwarz, 1302 Soniat Street, New Orleans, La.

Mrs. Christian Madsen, 7 Grace Street, Woodford, Maine.

Mrs. C. M. Schlenker, 201 S. Grinnell Street, Jackson, Mich.

Mrs. J. Guy Hawkins, 1105 Field Street, Fairmont, W. Va.

Mrs. J. A. Bernardi, 458 S. High Street, Salem, Oregon.

Mrs. J. O. Stapf, 25 3rd Avenue, Albany, N. Y.

MAKE THIS TEST

Sprinkle a little Old Dutch on a porcelain surface and rub with a smooth coin. You'll neither feel nor hear any harsh grating and no scratches will be made. Then try the same test with an ordinary, gritty cleanser and notice the difference.

Your customers will stay sold on products kept beautiful with

OLD DUTCH

. . . made with pure SEISMOTITE

Even the best bathtubs, wash basins and sinks quickly lose their bright, new luster if they're cleaned with scratchy cleansers. *And then the customer blames you!* That's why it's important to recommend only Old Dutch—the *safe* cleanser that is endorsed by leading manufacturers of home equipment.

Old Dutch is different from anything else because it contains Seismotite (pronounced Sīs'-mo-tīte)—a scratchless cleaning and polishing material of volcanic origin that is scientifically processed and compounded with other fine ingredients according to the famous Old Dutch formula. Its flaky, flat-shaped particles do more cleaning per penny of cost, clean quicker and do not scratch. Old Dutch is entirely free from the harsh, destructive grit found in ordinary cleansers.

Doesn't Scratch

Non-Kinkable
Plumbing Chain
for
Extra Business
When you estimate on renovations and repairs for any building—public or private—there is a real opportunity to please the owner by suggesting these inexpensive improvements with
BEAD CHAIN*
Chain and Stopper assemblies
Shower Curtain hold-backs
Furnace regulators
Heating System controls
Ventilators and Skylights
BEAD CHAIN* cannot kink. It is strong, and most attractive in appearance. Keep the two standard plumbing sizes in stock, in bulk as well as in assemblies. Your regular distributor can supply you.
USE
BEAD CHAIN
FOR PLUMBING
Trade Mark Reg. U. S. Pat. Off.
THE BEAD CHAIN MANUFACTURING CO.
*Trade Mark Reg. U. S. Pat. Off.
BRIDGEPORT, CONNECTICUT

STATE PRESIDENTS

Mrs. Neils Jepson, W. Newton, Mass.

Mrs. Robert Rennie, 415 E. 34th Street, Portland, Ore.

Mrs. Fred Hager, 10320 Walden Pkway, Chicago, Ill.

Mrs. Margaret Mesnard, 11901 Grand River Avenue, Detroit, Mich.

Mrs. N. M. Knudson, Falmouth Foreside, Maine.

Mrs. Henry Williamson, Mont Clair, N. J.

Mrs. Earl L. Clevenger, 1025 E. Washington Street, Muncie, Ind.

Mrs. Ellis Billings, 221 N. 2nd Street, Arkansas City, Kansas.

Mrs. Glen Watt, 608 S. Cincinnati Street, Tulsa, Okla.

Mrs. H. C. Baker, Toledo, Ohio.

Mrs. L. C. Pugh, Racine, Wis.

Mrs. Henry Bartosch, 3016 Chippewa Street, St. Louis, Mo.

Mrs. J. Guy Hawkins, 1105 Field Street, Fairmont, W. Va.

Mrs. Lee Phillips, 504 West Beacon Rd., Lakeland, Fla.

Mrs. Wm. Metcalf, Rockville Center, N. Y.

Mrs. J. W. McGelrick, 2012 Franklin St. N. E., Washington, D. C.

Mrs. C. A. Hjerpe, 93 Winthrop Street, New Britain, Cinn.

COMMITTEE OF STUDENT LOAN FUND FOR GIRLS

Mrs. Robert Liss, chairman, 1919 Belmont Avenue, Chicago, Ill.

Mrs. J. Preston Perham, vice chairman, 214 Spring Street, West Roxbury, Mass.

Mrs. George Doench, secretary, 3128 Fairfield Avenue, Cincinnati, Ohio.

Mrs. E. D. Hornbrook, treasurer, 4052 Hyde Park Avenue, Kansas City, Mo.

Mrs. W. E. McAndrew, member at large, 301 W. Frances Avenue, Tampa, Fla.

Mrs. R. J. Barrett, member at large, 14 Grant Circle, Washington, D. C.

Mrs. C. C. Corcoran, New Jersey, Chairman, Sanitation.

Mrs. E. D. Hornbrook, Kansas City, Mo., Chairman, Junior Auxiliaries.

In making the above announcement, Mrs. Liss urges the organization of Junior Auxiliaries under the guidance of Auxiliary officers and members. The movement for such organizations originated with Mrs. E. D. Hornbrook of Kansas City, Mo., who submitted a resolution along this line to this year's convention of the Women's Auxiliary held in Washington, D. C.

Dayton Auxiliary Celebrates Founders' Day

The Women's Auxiliary to the Master Plumbers' Association of Dayton, Ohio, held its founders' day party on Monday, October 15, at the home of Mrs. Walter Wilhelm, with Mrs. Edwards and Mrs. Stautzenback in charge of arrangements. The evening was spent most enjoyably around card tables. Prizes were distributed to the winners at a late hour. A dainty lunch was served. On Thursday, November 8, the Dayton Auxiliary held another nice party at its new quarters in the K. of C. Hall. The pastime was cards, and a delicious lunch was served.

Denver Auxiliary Elects Officers

The Women's Auxiliary to the Master Plumbers' Association of Denver, Colo., held its annual meeting November 14th at the Aromer Apartments in that city with Mrs. V. A. Kiser as hostess. Sixteen members were in attendance and were served a delicious luncheon at 1 p. m.

The election of officers resulted as follows: President, Mrs. V. Kandorf; vice president, Mrs. E. B. Clayton; secre-

tary, Mrs. F. X. Kreidl; sergeant-at-arms, Mrs. F. H. Samson; corresponding secretary, Mrs. F. X. Bordeau.

Honors at cards went to Mrs. V. Kandorf. The hostess prize was won by Mrs. F. H. Samson, and Mrs. R. A. Hurley won the traveling prize.

The Auxiliary will hold its next meeting on December 12th. The annual Christmas party will be held at the home of Mr. and Mrs. C. R. Cooper.

Tampa Auxiliary Has Successful Halloween Party

Members of the Women's Auxiliary to the Master Plumbers Association of Tampa, Florida, and their families were entertained at a Halloween party given at the Master Plumbers Club, 107 W. Francis Ave., Tampa, Fla. The hostesses were Mrs. Jas. F. Scott, Mrs. Henry Perryn, Miss Margaret Williams, and Mrs. W. E. McAndrew, each having celebrated her birthday during the week.

Ghosts, hobgoblins and witches greeted the guests as they entered the darkened hall, and a realistic witch told the fortune of each guest present.

Halloween games were played until a late hour, the travel contest prizes going to Mrs. G. B. Shaw and Mr. W. A. Perryn. Typical Halloween refreshments were served to the forty guests present.

Philadelphia Auxiliary Plans Birthday Party

The Women's Auxiliary to the Master Plumbers Association of Philadelphia held its regular monthly meeting at 1928 Market Street, Philadelphia, on Thursday, November 1st, with 32 members in attendance. Mrs. Quinlin, Mrs. Quaid and Miss Quaid were hostesses, and a delicious luncheon was served.

It was decided to hold the annual dinner at the Fuhrman Inn on Thursday, December 6, with Mrs. D. Worrell as hostess. It was also announced that plans are under way for a birthday party in honor of Mrs. Emma Henderson, one of the first and most active members of the Philadelphia Auxiliary.

Boston Auxiliary Holds November Meeting in Mrs. J. Preston Perham's Home

The Women's Auxiliary to the Master Plumbers Association of Boston and vicinity, held its monthly meeting Tuesday evening, November 20th, at the home of Mrs. J. Preston Perham in West Roxbury, Mass.

Arrangements were made to hold a whist party for the benefit of the Association on December 14th, at 12:45 p. m., at the Richardson Shop, 192 Boylston Street, Boston.

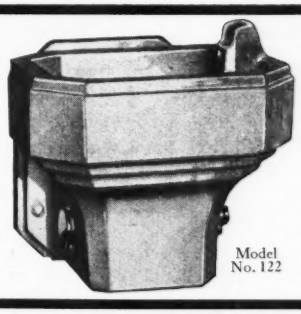
Refreshments were served, after which the party listened to the quartet: Mr. and Mrs. J. J. Downey, James G. Gillespie and William J. McAuliffe.

The next meeting will be a Christmas party, and it will be held Tuesday evening, December 18, at the home of President, Mrs. James A. Cotter.

Newton Auxiliary Has Bridge Party and Turkey Dinner

The Women's Auxiliary to the Master Plumbers' Association of Newton, Mass., held a successful bridge party at Moxie Land, Boston, Mass. The members of the Auxiliary were shown through the plant and saw how the beverage is made. Following this tour of inspection the party went to a very attractive log cabin and played cards. During the afternoon Mrs. Bates, hostess of Moxie Land, served refreshments. The prize winners were Mrs. H. L. Rose, Jr., and tion of Boston and vicinity, held its regular monthly Tuesa guest from Needham.

On Wednesday, November 14th, the Auxiliary held its



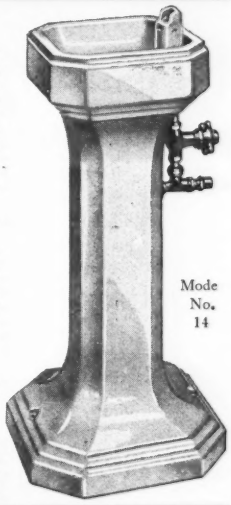
» » » ☆ « « «
Beauty that SELLS
» » » ☆ « « «

THE sheer beauty of these two new RUNDLE-SPENCE Drinking Fountains attracts the buyer's eye at first glance. These fountains are designed in the modern manner, yet they are not extreme. They are graceful and symmetrical of line, yet their ability to provide dependable, economical and sanitary drinking facilities has been in no wise sacrificed for appearance. Available in six attractive colors RUNDLE-SPENCE Fountains are harmonious with every interior.

All exposed metal parts are chromium plated.

Contamination of water is positively prevented by the R-S Angle Stream Non-Squirting Jet. This jet extends above bowl rim so that nozzle orifice can not be flooded in the event drain is clogged. The patented Rasco Ball-Bearing Self-Closing Valve is standard equipment. This valve provides dependable and economical service under all conditions.

Clinch the drinking fountain business in your locality with RUNDLE-SPENCE Fountains. Get the complete details . . . write today.



RUNDLE-SPENCE
MANUFACTURING COMPANY
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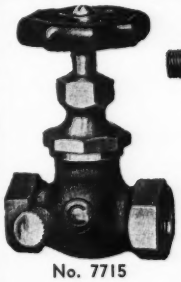

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PROFITABLE

Consolidated Brass is always a quality product that delivers full value in long dependable service.

When the contractor installs Consolidated Brass Goods he can feel confident that his customer is getting the best there is and he knows that every job nets him a worthwhile profit which will not be eaten up by repairs and replacements due to faulty equipment.

CONSOLIDATED BRASS CO.
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Dahlquist Turbo Super Aquatherm on Underfire Hot Water Storage System

DO YOU KNOW!

That Dahlquist Copper Boilers fitted with the TURBO and AQUATHERM are as far advanced over other hot water heaters as the new bullet trains are over the old wood burners.

They have the only fundamental improvement made in hot water storage tanks during the past 40 years.

HERE IS PROOF — Cost of Gas Cut in Half!

The owner of this attractive home writes in part—"Your 30 gallon TURBO replaced a nationally known gas water heater of same capacity which did not give satisfaction; never had sufficient supply of hot water; and the gas bills averaged between $12 and $13 per month. The first month after the installation of the Dahlquist Turbo Storage System, the bill was cut in half, being only $6.80. Your patented storage heater is actually getting better and more efficient—my last month's bill was only $5.80. This more than fulfills my expectations."

Learn about this modern automatic hot water storage system;—uses 50% less gas, gives crystal clear hot water day and night.

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● The plumber who installs Eagle lead pipe and fittings takes no chances with his reputation. No other metal has the tough endurance, the weather resistance, the elastic adjustability of lead.

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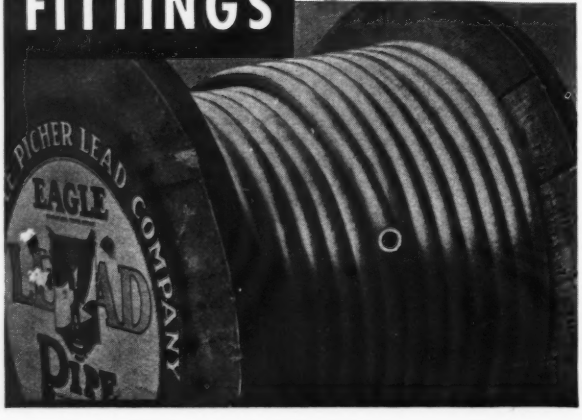


regular monthly meeting at Bond's Restaurant in Watertown, Mass. Mrs. J. H. McGourty was hostess, and a turkey dinner was served and thoroughly enjoyed by the twenty-three members in attendance. After the dinner the meeting was held with President Mrs. F. S. Warren presiding. Following the meeting, cards were played with honors going to Mrs. L. W. Stevens, Mrs. J. Clasty and Mrs. C. D. Kieser. The auxiliary prize, donated by Mrs. M. O'Connell, was won by Mrs. J. Clasty.

Cincinnati Auxiliary Plans Big Party for December

The Women's Auxiliary to the Master Plumbers' Association of Cincinnati, Ohio, held its regular monthly meeting at the Fountain Square Hotel in that city on Tuesday, November 6. The meeting started at 12:30 with a splendid luncheon. President, Mrs. Geo. Doench presided at the business meeting, which followed, and appointed a committee, consisting of Mrs. N. Wegelin, chairman; Mrs. W. Fillett and Mrs. Edw. Frank, to make preparations for a card party, which is to be held in the early part of December. It is planned to use the profits of this entertainment to pay part of the expense of the members of the auxiliary, who are going to Columbus to attend the annual state convention in February. Miss Emma Niesen donated a hand-made comforter which will be sold at this party.

Rock Island and Moline Auxiliary to Celebrate Seventh Anniversary

The Women's Auxiliary of the Master Plumbers Association of Rock Island and Moline, Ill., held its regular monthly meeting on Monday afternoon, November 19, at the home of Mrs. E. L. Householder in Rock Island.

Following the business session, bridge was played with high scores going to Mrs. James Cunningham, Miss Mildred Lamp and Mrs. P. H. Kale. Tasty refreshments were served by the hostess at the close of the card games.

The next meeting, Monday, December 10, will mark the seventh anniversary of the Auxiliary. A luncheon will be served at one o'clock, at the Swanson Tea Rooms, 838 21st Street, Rock Island. Christmas gifts will be exchanged and the afternoon hours will be spent playing bridge.

Denver Auxiliary Had Successful Hallowe'en Party

The Women's Auxiliary to the Master Plumbers' Association of Denver, Colo., was entertained by Mrs. F. X. Kreidl on Wednesday, October 10, at the Blue Parrot Inn. Seventeen members were in attendance and a delicious luncheon was served. Following the business meeting, cards were played with honors going to Mrs. V. A. Kandorf and Mrs. E. B. Clayton.

A most successful Hallowe'en party was held at the home of Mr. and Mrs. F. H. Samson on Saturday evening, October 27. Pumpkin pie and coffee was served. Mrs. V. A. Kandorf and Mr. F. X. Bordeau won high honors at cards, and Mrs. R. A. Hurley and Mr. J. J. Laverty were awarded consolation prizes.

The Women's Auxiliary of the Queensboro Branch of the New York City Association of Master Plumbers held its regular monthly meeting on Wednesday, November 7th, at the K. of C. Hall in Jamaica, L. I.

Plans were discussed and arrangements made concerning the distribution of Thanksgiving baskets to some of the needy families in Queens.

The recent barn dance of this auxiliary was a great success, being attended, as it was, by 350 persons.

BAR SERVICE

Ideas for Those Who Sell and Install Mechanical Equipment for Restaurants and Taverns

Steam Cooking Equipment Requires Proper Drainage

By Leo P. Flood

In discussing any problem it is always well to get down to fundamentals. In this discussion, therefore, we will consider some of the characteristics of steam which is used in the cooking process. One of the most important properties of steam is that the temperature varies with the pressure. For example, steam at ten pounds pressure has a temperature of 240 deg. Fahr., whereas steam at 90 pound pressure has a temperature of 331 deg. Fahr. This has a direct effect on the cooking process since the quantity of heat added to the batch in a given time is directly proportional to the temperature difference between the batch and the steam. In order to obtain the maximum production, it is therefore necessary to use steam at the highest pressure possible consistent with the limitations of the equipment and the properties of the material being processed.

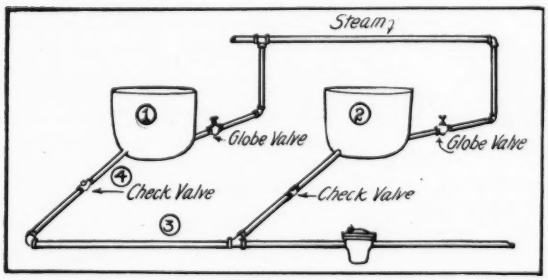


Fig. 1—How trouble starts when it is attempted to drain more than one kettle with only one trap

The difference in temperature between the steam and the batch is not the only thing which affects the rapidity and conformity of the cooking. Another very important factor is the effective heating surface. While the designed heating surface in any piece of apparatus is constant it is only all effective under certain conditions. A common cause of making part of the heating surface ineffective is sluggish draining of the water of condensation due to a steam trap which is either too small or inefficient. The water backs up and covers part of the heating surface, thereby keeping steam away from it.

Another common cause is air in the steam space. Air in the steam space is from two sources. When the inlet valve is closed some steam is left in the steam space. When this condenses a vacuum is formed and air leaks in from the outside through valve packings, etc. This air must be gotten rid of before the heating surface is fully effective. There is also a small amount of air which comes over with the steam and if not removed as fast as it comes over it will accumulate in the steam space and make the heating surface ineffective.

From this discussion it is seen, therefore, that in order to get the maximum production and uniform quality from cooking equipment, three things must be accomplished: First, the air which collects in the apparatus when idle must be promptly removed; second, the condensed steam must be removed as rapidly as formed, and finally the air which comes over from the boiler must not be allowed to accumulate. All three of these tasks should be done without decreasing the pressure in the steam space.

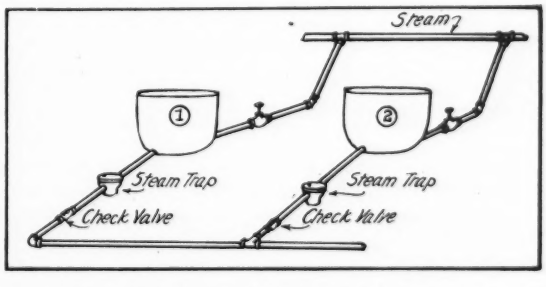


Fig. 2—How the difficulty in Fig. 1 is overcome in using individual traps

There are in use two methods of handling condensation; by means of a valve on the outlet of the steam space, and

by means of a steam trap. Let us see how these two methods compare in accomplishing the functions mentioned above.

First: Removing the air when starting up. When the valve is used it is opened wide and allows the steam to blow through. This effectively clears out the air but it reduces the pressure of the steam and, therefore, the temperature, and slows up the cooking process. Furthermore, it is extremely wasteful since the steam blows into a closed pipe line and the operator is unable to tell when the air is cleaned out. On the other hand, when a steam trap is used it can be quickly vented through an independent air cock which blows into the atmosphere. It is not wasteful since it can be shut off as soon as the steam starts to come through. It is automatically taking care of the condensation in the meantime without reducing the pressure in the steam

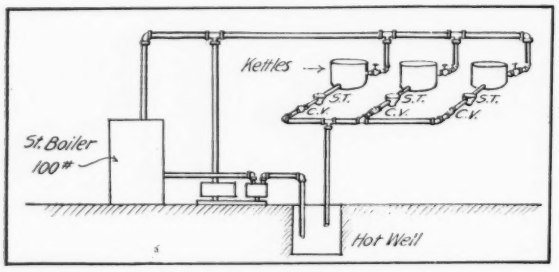


Fig. 3—A source of waste. A drainage and boiler feed system using an open hot well

space. Most steam traps are capable of handling air without opening a vent. Their air handling capacity, however, is limited and since it is imperative that the air be cleared out as rapidly as possible the best trap to use is one with an indepeudent air vent as well as the internal air handling mechanism.

Second: Discharging the condensed steam as rapidly as formed. It is impossible to set a valve by hand so that it just discharges the water as it forms. This is true for several reasons. The operator has no way of determining when the valve is properly set and, furthermore, the setting would have to be changed several times during the cooking period since the steam is condensed at a varying rate. The result is that the valve is either opened too wide and is allowing the steam to blow through, thereby wasting steam and reducing the temperature in the steam space, or that it is not opened enough and allows water to accumulate, destroying the effectiveness of the heating surface. If a steam trap is used, however, the steam space is at all times kept clear of water without any waste or reduction in pressure.

REMOVING AIR FROM STEAM

Third: Removing air which comes over with the steam. The only time that the valve is able to do this is when it is opened wide enough to allow the steam to blow through. This, as stated above, at the cost of wasted steam and reduced temperature in the steam space. If the valve is not opened so that the steam blows through the water, air accumulates, making the heating surface largely ineffective and slowing up the process. When a trap is used the internal air handling mechanism is able to handle the air along with the water rapidly enough to keep the heating surface fully effective and at maximum temperature.

The conclusion is clear, therefore, that the use of steam traps on cooking equipment is conducive to high production since the heating surface is brought more rapidly to the maximum temperature and kept at that point during the process. This is accomplished also with absolutely no waste of steam since all of the latent heat is extracted before it is discharged in the form of water. One of the principal factors in quality manufacturing is uniformity. In modern manufacturing there is no excuse, and very little market for, a product which lacks uniformity. The only way it can be obtained is by strict control over the manufacturing process. It is poor business to depend upon makeshift methods for such an important task as condensation drainage. If it is not properly done, the processing time will vary, thereby increasing overhead and labor cost; the product will not be uniform, and will be harder to sell and it will cost more to manufacture due to the waste of steam.

In laying out a condensation handling system it is well to obtain the advice of a reliable steam trap manufacturer or a competent engineer. The economies obtainable by the use of the proper equipment are sometimes very hard to believe. The writer has personal knowledge of a number of cases when the savings have amounted to as much as forty per cent of the cost of the fuel. The investment for equipment and installation in a case of this sort is absorbed by the savings in a very short period. Savings during one or two months in some cases pay for the total cost.

ONE TRAP FOR EACH KETTLE

An individual trap should be used for each piece of equipment. Do not, for example, try to drain more than one kettle with one trap. You will have trouble if you do. Refer to Fig. 1. When a batch is first started it uses a great deal more steam than it does when it is up to the proper temperature. The result is that the pressure in the steam space in kettle No. 1 in which a batch has just been started is less than it is in kettle No. 2 in which a batch has been cooking, or in the discharge pipe No. 3. Therefore, the check valve No. 4 will not open and water and air will collect in the steam space in kettle No. 1, slowing up the cooking process when it should be as rapid as possible. This difficulty may be overcome by using individual traps on each kettle as shown in Fig. 2.

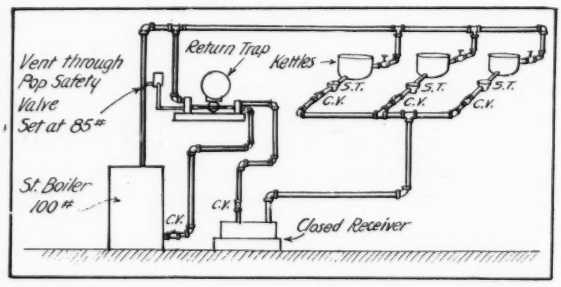


Fig. 4—A plant similar to that in Fig. 3 except here the return trap results in a saving in operating steam costs

In this case the pressure in the common discharge line is lower than in either of the traps and they will drain the kettles independently without any trouble.

Do not try to economize by using a trap which is smaller than recommended. Although the initial cost is less, the operating loss due to slow elimination of air and sluggish drainage soon eats up this saving.

Do not select a steam trap by the size of the pipe connection. The pipe size of the trap has nothing to do with the capacity. Select a trap from the manufacturer's capacity tables, bearing in mind that it should be able to handle the maximum load at the minimum steam pressure and should be

able to operate at the maximum pressure to which it will be subjected. This is important because a steam trap will not operate above the pressure for which it is designed and, furthermore, its capacity decreases as the pressures decrease below this point.

Let us take as a specific example the kettle mentioned in the previous discussion. The live steam pressure is 100 pounds per square inch. Therefore, the trap must be able to operate at this pressure. When starting a new batch, however, the steam is drawn so rapidly that the pressure at the trap is reduced to 60 pounds per square inch. It is at this time that the maximum steam is used also. This amounts to 600 pounds per hour. Therefore, the trap selected should be a trap designed for 100 pounds pressure but able to discharge 600 pounds of water per hour at 60 lbs. working pressure.

RETURN TEMPERATURE FOR WATER

Return the water to the boiler at the highest temperature possible. Bear in mind that when a steam trap discharges into an open hot well or vented receiving tank the water is cooled to 212 deg. Fahr. regardless of the temperature before discharge. This drop in temperature results in a large heat loss, usually avoidable, as well as a considerable loss of the water itself which passes off into the atmosphere in the form of flash steam. This loss of pure distilled boiler feed water is of particular importance when it must be made up with fresh water containing scale forming impurities; in other words—hard water. As soon as hard water is heated in the steam boiler the impurities are deposited on the tubes in the form of scale, decreasing the efficiency of the boiler and again wasting fuel.

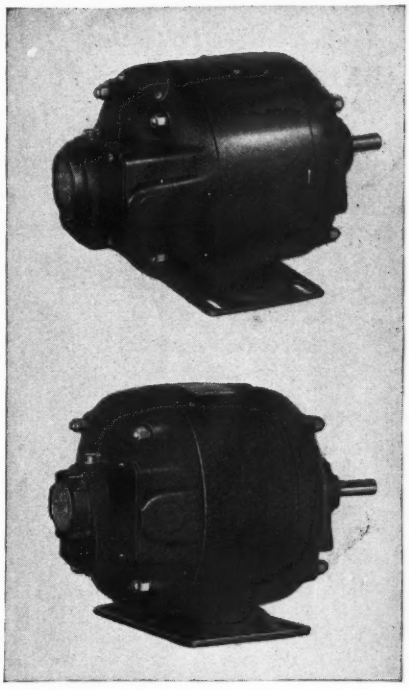
The best way to conserve the heat in the condensed water is to close the system by the use of return traps as well as non-return traps. In Fig. 3 is shown a condensation drainage and boiler feed system using an open hot well and boiler feed pump. In Fig. 4 is shown a closed system for a similar plant in which a return trap is used for feeding the boiler and in which a back pressure is maintained on the return line. The drop in pressure through the closed system is sufficient to give rapid circulation to the steam and water, but because of the conservation of the heat in the condensed water, seventeen per cent less fuel is used than in the system shown in Fig. 3. In a hard water district an additional saving of about ten per cent could be expected because of the increased boiler efficiency obtained by the decreased amount of scale deposited in the boiler from impure feed water.

The enormous savings which can be made by the conservation of available heat is something which has been long realized and put into practice by competent engineers. A thorough investigation and correction of faulty conditions is likely to pay large dividends.

New Method of Studying Flow of Water Through Pipe

A description of one of the strangest motion pictures ever taken, with water, benzene and carbon tetrachloride as the principal characters, was offered by three University of Illinois research workers, at the last session of a joint aeronautics-hydraulics meeting sponsored by the American Society of Mechanical Engineers and held recently in San Francisco. The purpose of the motion picture was to study the flow of water through a pipe. Usually, instruments are placed in a pipe to obtain such information, but the instruments tend to change the flow conditions.

To obviate this difficulty, water was studied in a transparent glass pipe. The movement of the water was made



Which motor for your automatic beer pumps?

For high torque, select the Type RSA, repulsion-start induction motor.

For moderate torque, select the Type KH resistance split-phase motor.

Both of these motors have features which will reduce your service costs and simplify installation:

1. Built-in terminal box—no leads to splice or solder
2. Drip-proof end flanges keep dripping liquids out of motor—lower maintenance expense
3. Large bearing-oil capacity—oiling required only once a year
4. Rotors are cushioned to prevent objectionable noise from end-bumping caused by reciprocating loads

For further information on these "carefree" motors, write to General Electric Co., Dept. 6B-201, Schenectady, N. Y.

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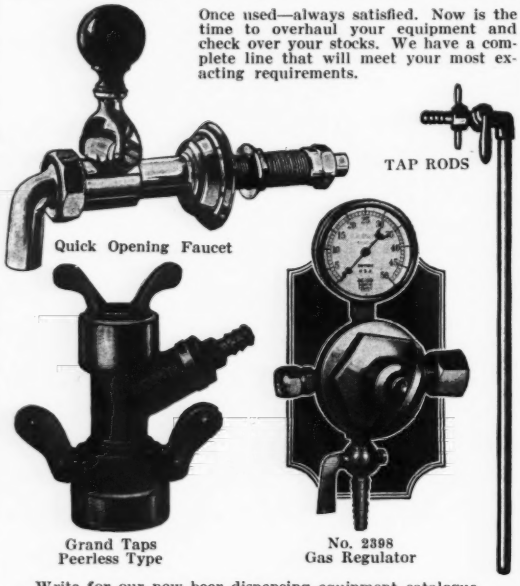

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Peerless Type

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Gas Regulator

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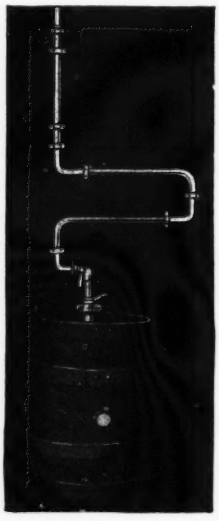
visible by mixing with it tiny drops of a mixture of benzene and tetrachloride. It was found that these drops could be made to shine like specks of dust in a beam of sunlight, if the glass tube were illuminated properly.

Using panchromatic film in a motion picture camera it was possible to obtain a continuous record of the movement of water through the tube. This record indicated, among other things, that under certain conditions the water at the center of the tube travels with twice the velocity for the tube as a whole. The value of the motion picture method lies in the permanence of records obtained, the elimination of mechanical disturbances to the flow of water, its applicability to all velocities, including acceleration and deceleration, and the fact that velocity in all parts of the diameter of the pipe is measured with one operation.

The authors of the work were Edgar E. Amrosius and John C. Reed, associates in mechanical engineering, and Henry F. Irving, former research assistant, of the University of Illinois. The authors being unable to attend the meeting, Professor V. C. Finch of Stanford University presented the paper.

Connecting Units For Beer Barrels

The accompanying illustration shows how a recently announced set of connections are attached to a beer barrel for drawing the beer. The metal from which these connections are made is described as being inert to beer. It is pointed out by the manufacturer that these connections can be cleaned easily with no changes in the present beer coil cleaning methods. Premier Coil Cleaner Mfg. Co., 166 W. Jackson Blvd., Chicago, Ill., is the manufacturer.



San Francisco, Calif.—The Empire Heating Company has moved its business from 3124 Geary Street to 210 Post Street.

Cheney, Wash.—William Schmidt has sold the business of the Cheney Plumbing and Heating Company to C. E. Goody.

Newark, N. J.,—F. L. Merrell has moved his plumbing business from 128 North Sixth Street to 278 North Twelfth Street.

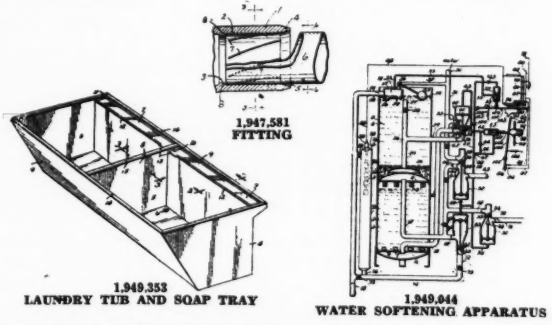
San Francisco, Calif.—George L. Bulotti has moved his plumbing and heating business from 315 Columbus Street to 453 Columbus Street.

NEW IDEAS FROM PATENT OFFICE

Plumbing Department

1,947,581. Fitting. Louis A. Cornelius, Grand Rapids, Mich., assignor to Wolverine Brass Works, Grand Rapids, Mich., a corporation of Michigan.

1,949,353. Laundry Tub and Soap Tray. Olof S. Burman, Minneapolis, Minn.

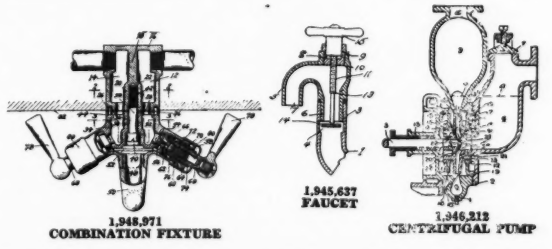


1,947,581 FITTING

1,949,353 LAUNDRY TUB AND SOAP TRAY

1,949,044 WATER SOFTENING APPARATUS

1,949,044. Water Softening Apparatus. Andrew J. Dotterweich, Pittsburgh, Pa., assignor to Automatic Water Softener Company, Pittsburgh, Pa., a corporation of Delaware.



1,948,971 COMBINATION FIXTURE

1,945,637 FAUCET

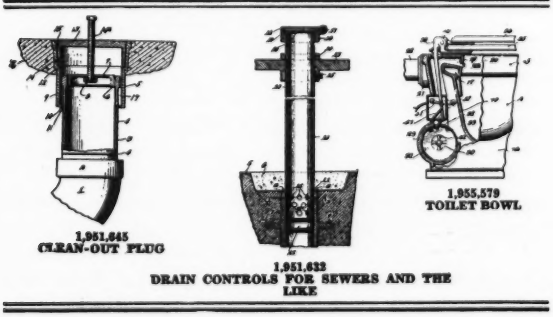
1,946,212 CENTRIFUGAL PUMP

1,948,971. Combination Fixture. Francis T. Meyer, Montclair, N. J., assignor to The Meyer-Sniffen Company, New York, N. Y., a corporation of New York.

1,945,637. Faucet. José Andrés y Hernandez, Habana, Cuba.

1,946,212. Centrifugal Pump. Oystein Jacobsen, Dayton, Ohio, assignor to The Duriron Company, Inc., a corporation of New York.

1,951,645. Cleanout Plug. Edward W. N. Boosey, Detroit, Mich.



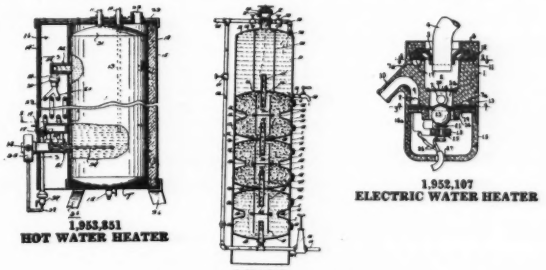
1,951,645 CLEAN-OUT PLUG

1,951,632 DRAIN CONTROLS FOR SEWERS AND THE LIKE

1,955,579 TOILET BOWL

1,951,632. Drain Controls for Sewers and the Like. Christ A. Selimos, Cicero, Ill.

1,955,579. Toilet Bowl. Henri S. de Malaussene, Los Angeles, Calif., assignor to Adolph L. Bernheimer, Santa Monica, Calif.



1,953,851 HOT WATER HEATER

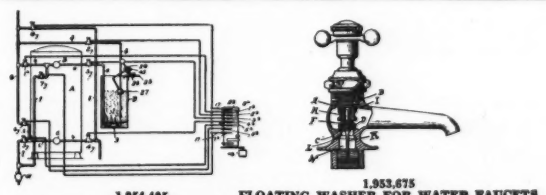
1,951,917 WATER SOFTENER OR FILTER

1,952,107 ELECTRIC WATER HEATER

1,953,851. Hot Water Heater. Roy M. Forster, Port Arthur, Texas.

1,951,917. Water Softener or Filter. Francis Leslie, Springfield, N. J.

1,952,107. Electric Water Heater. Guss E. Wilson, Detroit, Mich.



1,954,405 WATER-SOFTENING APPARATUS

1,953,675 FLOATING WASHER FOR WATER FAUCETS

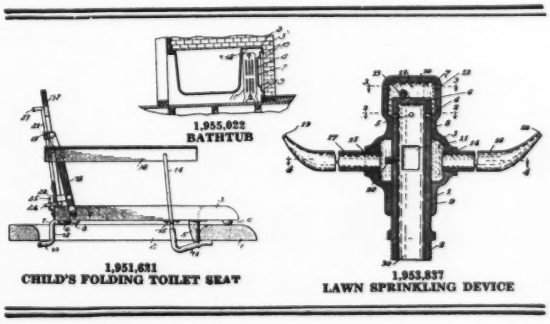
1,954,405. Water-Softening Apparatus. Andrew J. Dotterweich, Pittsburgh, Pa., assignor by mesne assignment, to General Water Treatment Corporation, New York, N. Y., a corporation of Delaware.

1,953,675. Floating Washer for Water Faucets. Jacob Erisman, Cleveland, Ohio.

1,955,022. Bathtub. Clarence J. Rodman, Alliance, Ohio.

1,951,621. Child's Folding Toilet Seat. Edgar Mayette, Rochester, N. Y., assignor to Kennedy-McCandless Corporation, Rochester, N. Y., a corporation of New York.

1,953,837. Lawn Sprinkling Device. Frederick W. Thorold, New York, N. Y., and Thomas Gregory, Toronto, Ontario, Canada.



1,955,022 BATHTUB

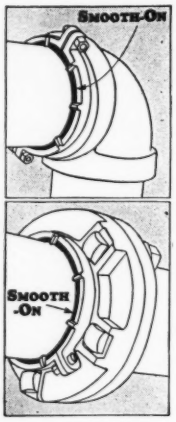
1,951,621 CHILD'S FOLDING TOILET SEAT

1,953,837 LAWN SPRINKLING DEVICE

Stop pipe thread leaks with SMOOTH-ON No. 1 in a

SMOOTH-ON CLAMP

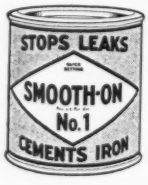
Sizes for 1-in. to 12-in. pipe



QUICK, easy, cheap and dependable. Holds for the life of the line—steam, hot or cold water, gas, etc., any pressure, any temperature, iron, brass, or copper pipe. No interference with bolt heads or nuts of flanged joints.

Smooth-On No. 1 stops leaks by making a pressure and fluid tight seal at joints, cracks, and breaks in metal. Use it on boilers, pipe lines, engines, pumps, compressors, tanks, etc., and to tighten stripped or loose bolts, studs and nuts.

Also excellent for resetting loose tool handles, hinges, locks, and for providing a solid backing between parts having irregular surfaces.



Applied cold and sets quickly, thereby avoiding long interruptions, hard labor and the expense for costly new parts.

Get Smooth-On Clamps and Smooth-On No. 1 from nearest supply house or from us.

Write for the Smooth-On Handbook

Smooth-On Mfg. Co., Dept. 12, Jersey City, N. J.

***Do it with* SMOOTH-ON**

PENNSYLVANIA RANGE BOILERS

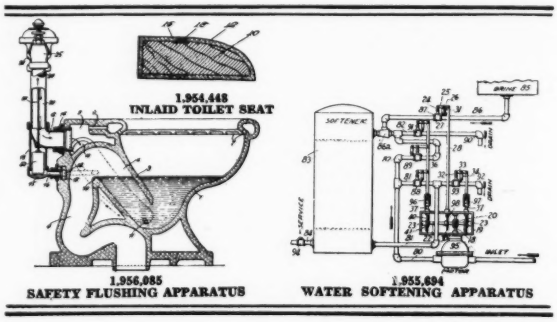
Lady: "Will this boiler give good service?"
Plumber: "Madam, I've been installing boilers for ten years and I have never yet had a kick about a Pennsylvania Boiler. They'll give satisfaction — I'll guarantee you that."

PENNSYLVANIA RANGE BOILER COMPANY

Established Since 1895 24th & WASHINGTON AVE., PHILA.

1,954,448. Inlaid Toilet Seat. Frank B. Hackett, Chicago, Ill., assignor to The Brunswick-Balke-Collender Company, Chicago, Ill., a corporation of Delaware.

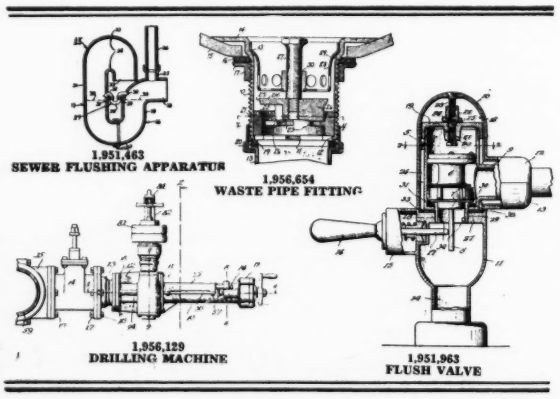
1,956,085. Safety Flushing Apparatus. Michael J. Tracy, St. Louis County, Mo., assignor to Pauly Jail Building Company, St. Louis, Mo., a corporation of Missouri.



1,955,694. Water-Softening Apparatus. Edward T. Turner, Dayton, Ohio, assignor to General Water Treatment Corporation, New York, N. Y., a corporation of Delaware.

1,951,463. Sewer Flushing Apparatus. Herman Wirz, Jr., and Charles F. Hlavaty, Los Angeles, Calif.

1,959,654. Waste Pipe Fitting. Elton A. Pope, Waterbury, Conn., assignor to The Chase Companies, Incorporated, Waterbury, Conn., a corporation.



1,956,129. Drilling Machine for Tapping a Supply Pipe. Robert H. Mueller, Frank H. Mueller, and Loie Condé, Decatur, Ill., assignors to Mueller Co., Decatur, Ill., a corporation of Illinois.

1,951,963. Flush Valve. Thomas Richard Burke, San Francisco, Calif.

Heating Department

1,949,640. Air Conditioning Apparatus. Samuel M. Anderson, Sharon, Mass., assignor to B. F. Sturtevant Company, Hyde Park, Mass., a corporation of Massachusetts.

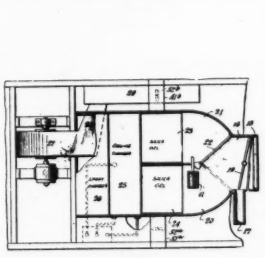
1,946,776. Mechanical Stoker. Warren Dean Burton, Goshen, Ind., assignor to Combustioneer, Inc., Goshen, Ind., a corporation of Illinois.

1,950,239. Stoker Conveyor Trough. Elmer E. Hicken, Collingswood, N. J.

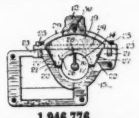
1,950,161. Oil Burner. Oscar L. Bock, Madison, Wis.

1,949,938. Pipe Bending Device. William H. Martin, Owensboro, Ky., assignor to H. P. Martin & Sons, Owensboro, Ky., a copartnership composed of William H. Martin, Charles L. Martin and Clarence F. Martin.

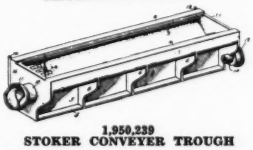
1,949,776. Heat Responsive Valve. William L. Belknap, Bridgeport, Conn., assignor to The Belknap Manufacturing Company, Bridgeport, Conn., a corporation of Connecticut.



1,949,640
AIR CONDITIONING APPARATUS



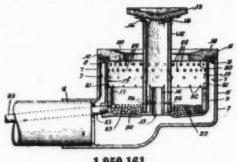
1,946,776
MECHANICAL STOKER



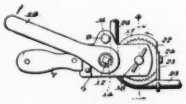
1,950,239
STOKER CONVEYER TROUGH

1,949,540. Air Filter. James K. Hammond, Louisville, Ky., assignor to American Air Filter Company, Inc., Louisville, Ky., a corporation of Delaware.

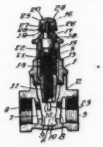
1,950,347. Air Washer and Humidifier. Walter W. Williams, Bloomington, Ill.



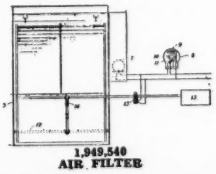
1,950,161
OIL BURNER



1,949,938
PIPE BENDING DEVICE



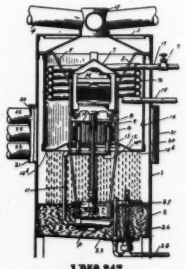
1,949,776
HEAT RESPONSIVE VALVE



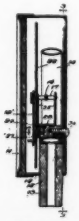
1,949,540
AIR FILTER

1,950,031. Gauge. Harold L. Joyce, Chicago, Ill., assignor, by mesne assignments, to Jas. P. Marsh Corporation, Chicago, Ill., a corporation of Illinois.

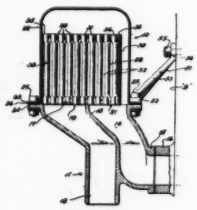
1,950,211. Oil Cooling Radiator. Joseph Askin, Buffalo, N. Y., assignor to Fedders Manufacturing Co., Inc., Buffalo, N. Y.



1,950,347
AIR WASHER AND HUMIDIFIER



1,950,031
GAUGE



1,950,211
OIL COOLING RADIATOR

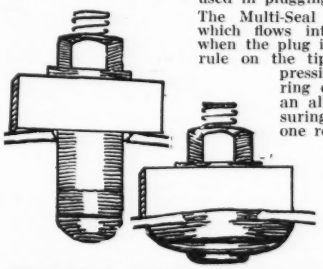
1,951,368. Radiator Construction. Richard H. Nelson, Moline, Ill., assignor to The Herman Nelson Corporation, Moline, Ill., a corporation of Illinois.

1,951,560. Expansion Mechanism for Oil Heating Systems. James Arthur Reavell, London, England, assignor to Parks-

THE NEW WAY TO REPAIR

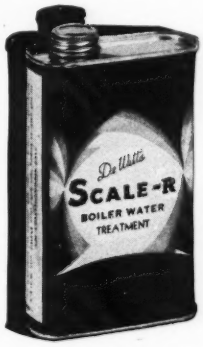
For years plumbers have been faced with the problem of making repairs in tanks or in heating sections where the hole was in thin rusty metal, or on an overlapping seam or on a corner.

The Multi-Seal Plug not only makes these repairs, but secures metal patches over large holes, repairs cracks, replaces leaky rivets and is used in plugging cleanout holes in waste lines.



The Multi-Seal Plug is of lead composition which flows into cracks and irregular holes when the plug is drawn down. The metal ferrule on the tip of the plug fans out, compressing the metal into a flanged ring or rivet. The seal produced is an all-metal seal on three sides, assuring no further trouble from this one repair.

MULTI-SEAL MFG. CO.
BOX 3900
MERCHANDISE MART
CHICAGO, ILL.



SCALE-R
Keeps Boilers Clean

Guaranteed to remove scale, oil, grease and other foreign matter without the bother of blowing down.

Safe and Non-Explosive
Scale-R is suitable for *all boilers.* It is clean, odorless, sanitary, safe. Gives revolutionary results in all steam and hot water heating plants.

Write for Free Literature
Full information on request, free and without obligation. *Special Introductory Offer.* Just send your name and name of jobber.

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NO-SOL COPPER FLOATS

Quality Merchandise
DOES MOST TO STIMULATE Consumer Confidence

5" Round Float

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Incorporated 1907
THE AYLING & REICHERT CO.
3047 N. ERIE ST. TOLEDO, OHIO

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WE DO OUR PART

• WARNOCK •
Triple Wear Wrenches

The Warnock wrench is easy to adjust. The strap is arranged in such a way that it can be drawn absolutely tight in *one* movement. Notice, too, that this strap is triple folded at the point of greatest strain.

For chrome, brass and nickel plated pipe

WARNOCK MFG. CO., Worcester, Mass.

Look for the Arm-and-Hammer

ARMSTRONG BROS.

Patented CHAIN VISE

Write for Catalog

Built for a lifetime of better service. Jaws are 1-piece drop forging with center "bridge" that prevents bending of even the smallest pipe. Base and Handle are drop-forged. The Screw is alloy steel; the nut hardened steed. Chains are proof-tested.

Light weight, compact, strong with extreme capacity for weight this vise goes to the job in the tool bag, attaches anywhere. From the most complete line of pipe tools made, each an improved tool.

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"The Tool Holder People"
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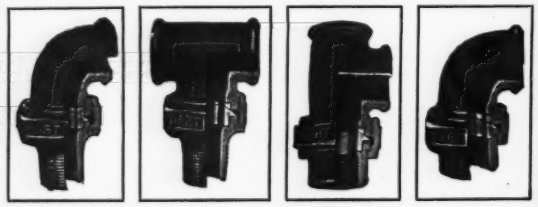
TAKE NO CHANCES . . . SPECIFY DART

The moment you specify DART Unions you eliminate all element of chance. You can safely stake your reputation on DART Unions . . . DART Unions GIVE service.

A long life of leak-proof, corrosion-free service is assured by the two bronze seats, ball-ground and swedged into tough malleable iron pipe ends. Write for details.

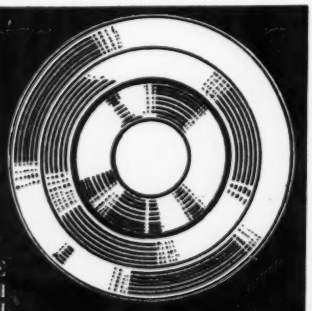
E. M. DART MFG. COMPANY, PROVIDENCE, R. I.
The Fairbanks Co., Sales Agents Canadian Factory: Dart Union Co., Ltd., Toronto, Can.



for More SPEED EASE WEAR

use genuine TRICROME cutter wheels "The silvered wheel with the brilliant red hub."

For Barnes, Saunders, Crown as well as Trimo type cutters.



TRIMONT MFG. CO., INC.
ROXBURY (BOSTON), MASS.
who have made TRIMO TOOLS for 50 Years

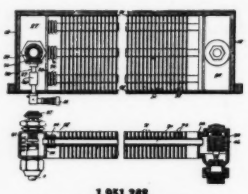
INDLEY'S

PLUMBERS' SPECIALTIES

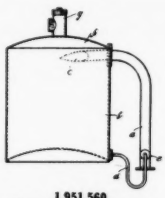
● No matter how you calculate—time lost on the job leads to red figures in your ledger. Why not change the color of these figures by keeping stocked up on HINDLEY'S at all times.

HINDLEY MFG. CO., VALLEY FALLS, R. I.

"LITTLE AIDS TO BIG PROFITS"



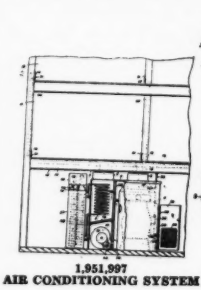
1,951,388
RADIATOR CONSTRUCTION



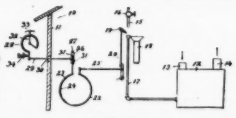
1,951,560
EXPANSION MECHANISM FOR OIL HEATING SYSTEMS

Cramer Company, Boston, Mass., a corporation of Massachusetts.

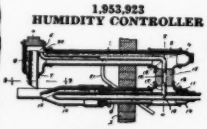
1,951,997. Air Conditioning System. Charles A. Seitz, Tecumseh, Mich., and James C. Bostain, Cincinnati, Ohio, assignors to The Williamson Heater Company, Cincinnati, Ohio, a corporation of Ohio.



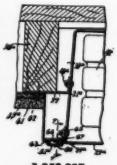
1,951,997
AIR CONDITIONING SYSTEM



1,953,923
HUMIDITY CONTROLLER



1,951,818
OIL BURNER



1,952,327
ENCLOSURE FOR RADIATORS

1,953,923. Humidity Controller. George W. Bulley, Akron, Ohio.

1,951,818. Oil Burner. Monroe Brittain, Chickasha, Okla.

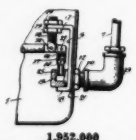
1,952,327. Enclosure for Radiators. James F. McIntire, Detroit, Mich., assignor to United States Radiator Corporation, Detroit, Mich., a corporation of New York.

1,952,000. Water Supply Regulator for Humidifiers. John L. Skuttle, Mason City, Iowa.

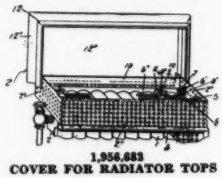
1,956,682. Cover for Radiator Tops. Emil George Hess, Toronto, Ontario, Canada.

1,952,550. Gas Burner. Harry E. Kerr, Cleveland, Ohio, assignor to The Barber Gas Burner Company, Cleveland, Ohio.

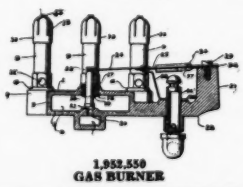
1,953,021. Stoker. William E. Lower, Bellevue, Pa., assignor to The Standard Stoker Company, Incorporated, a corporation of Delaware.



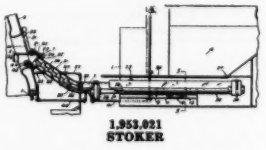
1,952,000
WATER SUPPLY REGULATOR FOR HUMIDIFIERS



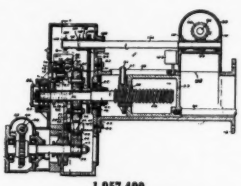
1,956,682
COVER FOR RADIATOR TOPS



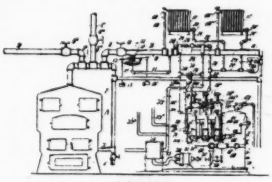
1,952,550
GAS BURNER



1,953,021
STOKER



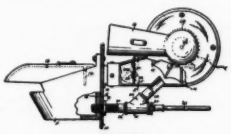
1,957,400
AUTOMATIC STOKER



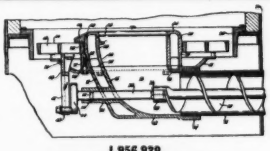
1,951,588
HEATING SYSTEM

1,957,400. Automatic Stoker. Wilbur H. Whitty and Edward C. Taylor, Boston, Mass., assignors to Whitty Manufacturing Company, Inc., Boston, Mass., a corporation of Massachusetts.

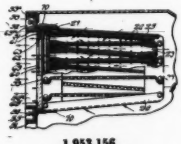
1,951,588. Heating System. John H. Van Zandt, Dallas, Tex., assignor to C. A. Dunham Company, Marshalltown, Iowa, a corporation of Iowa.



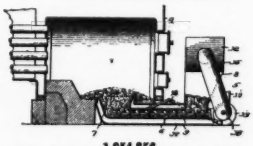
1,951,648
OIL BURNER



1,956,939
MECHANICAL STOKER



1,953,156
AIR FILTER



1,954,856
AUTOMATIC STOKER APPARATUS

1,951,648. Oil Burner. Everett E. Dehart, Omaha, Nebr.

1,956,939. Mechanical Stoker. John Wynn, Jr., Canton, Ohio.

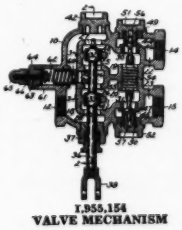
1,953,156. Air Filter. Verner Dahlman, New Lenox, Ill., assignor to Independent Air Filter Company, Chicago, Ill., a corporation of Illinois.

1,954,856. Automatic Stoker Apparatus. Bert Daniel Wetmore, Bismarck, N. Dak., assignor to Henry M. Brooks, New York, N. Y., William Tudor Gardiner, Augusta, Maine, and Richard Kingsley Hawes, Fall River, Mass., trustees.

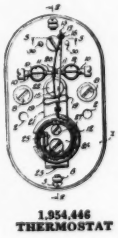
1,955,154. Valve Mechanism. Paul C. Temple, Decatur, Ill., assignor to A. W. Cash Company, Decatur, Ill., a corporation of Delaware.

1,954,446. Thermostat. Frank A. Gauger, Milwaukee, Wis.

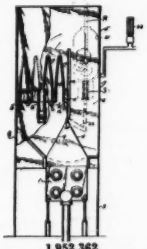
1,952,362. Air Conditioning Apparatus. William A. Bulger, Chicago, Ill., assignor to Petroleum Heat and Power Company, New York, N. Y., a corporation of Delaware.



1,955,154
VALVE MECHANISM



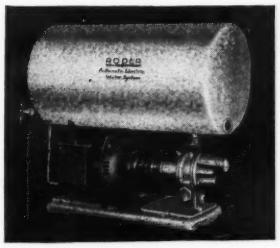
1,954,446
THERMOSTAT



1,952,362
AIR CONDITIONING APPARATUS

of low price QUALITY WATER SYSTEMS

. . . Sell Every Prospect



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Tempered Steel

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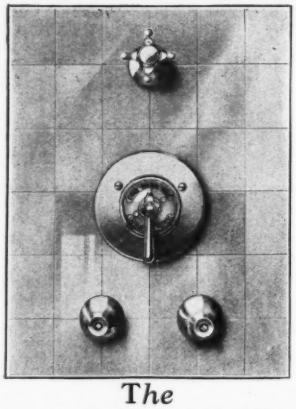

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Incorporated 1913
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MELBOURNE HOTEL

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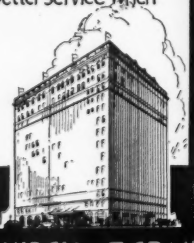
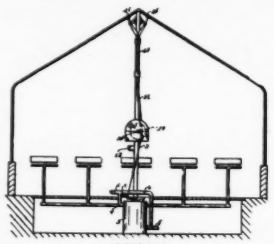
WITH BATH FROM $2.50

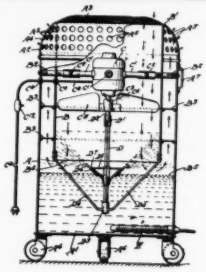
O. P. GREATHOUSE Manager



ST. LOUIS LINDELL AT GRAND



1,952,350
AUTOMATIC CONTROL FOR HEATING AND VENTILATING



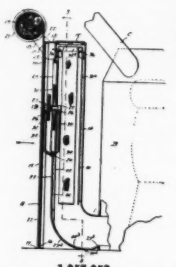
1,952,269
AIR WASHING DEVICE

1,952,352. Automatic Control for Heating and Ventilating. Charles E. Armstrong, Corvallis, Oreg., assignor to Armstrong Heat Control Co., a corporation of Oregon.

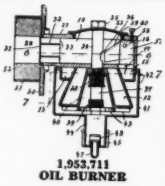
1,952,269. Air Washing Device. Hans G. Lundquist, Chicago, Ill., assignor of one-half to Louis Kohn, Chicago, Ill.

1,957,058. Air Conditioning Device. William C. Denison, Cleveland Heights, Ohio.

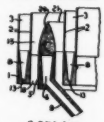
1,953,711. Oil Burner. Heinrich Bernhard Heineke and Alfred Nielsen, Copenhagen, Denmark.



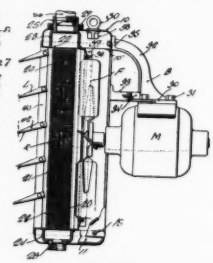
1,957,058
AIR CONDITIONING DEVICE



1,953,711
OIL BURNER



1,951,641
OIL BURNER



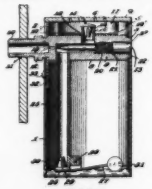
1,953,118
UNIT HEATER

1,951,641. Oil Burner. George Norman Albree, Concord, Mass.

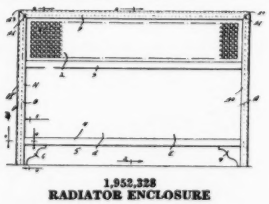
1,953,118. Unit Heater. Daniel T. MacLeod, Milwaukee, Wis., assignor to Perfex Corporation, Milwaukee, Wis., a corporation of Wisconsin.

1,954,942. Combined Radiator Valve and Humidifier. Bernhard A. Mueller, East St. Louis, Ill.

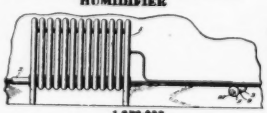
1,952,328. Radiator Enclosure. James F. McIntire, Detroit, Mich., assignor to United States Radiator Corporation, Detroit, Mich., a corporation of New York.



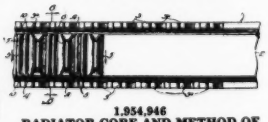
1,954,942
COMBINED RADIATOR VALVE AND HUMIDIFIER



1,952,328
RADIATOR ENCLOSURE



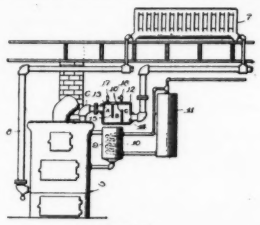
1,956,803
STEAM RADIATOR CONTROL



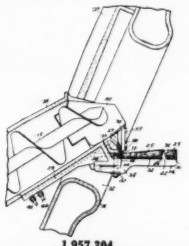
1,954,946
RADIATOR CORE AND METHOD OF MAKING SAME

1,956,003. Steam Radiator Control. Ellis Burrell, Chicago, Ill., assignor to Evenaire Regulator Co., Chicago, Ill., a corporation of Illinois.

1,954,946. Radiator Core and Method of Making Same. Fred M. Opitz, Milwaukee, Wis., assignor to Hexcel Radiator Company, Milwaukee, Wis., a corporation of Wisconsin.



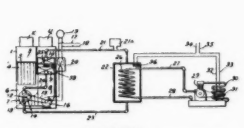
1,952,475
WATER CIRCULATION CONTROL DEVICE



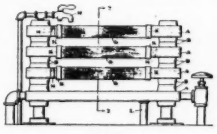
1,957,304
MECHANICAL STOKER

1,952,475. Water Circulation Control Device. Edwin B. Tidd, Chicago, Ill., assignor to Bell & Gossett Company, Chicago, Ill., a corporation of Illinois.

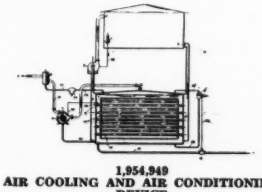
1,957,304. Mechanical Stoker. Howard C. Woodbridge, Rochester, N. Y.



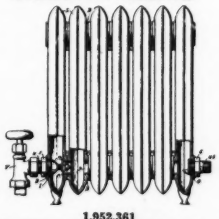
1,954,455
AIR CONDITIONING APPARATUS



1,954,177
HUMIDIFYING RADIATOR



1,954,949
AIR COOLING AND AIR CONDITIONING DEVICE

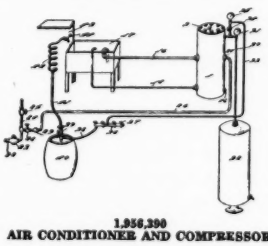


1,952,361
INLET AND OUTLET ATTACHMENT FOR HEAT RADIATORS

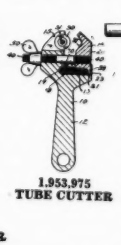
1,954,455. Air Conditioning Apparatus. Clark T. Morse and Edward L. Hogan, Detroit, Mich., assignors to American Blower Corporation, Detroit, Mich., a corporation of Delaware.

1,954,177. Humidifying Radiator. Andrew U. Jones, Montreal, Quebec, Canada.

1,954,949. Air Cooling and Air Conditioning Device. Ralph C. Roe, Englewood, N. J.



1,956,390
AIR CONDITIONER AND COMPRESSOR



1,953,975
TUBE CUTTER

1,951,584
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COPPER TUBING

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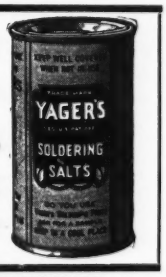

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HUDSON NEW YORK
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Sales Agency for Canada: Canadian General Electric Co., Toronto and Montreal.

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for Governing Hot Water Heating

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Branches: New York and San Francisco

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• A complete, electric, fully automatic HOME WATER SYSTEM at the lowest price in history for a genuine Fairbanks-Morse product. Other sizes and types for any water supply, engine or electric driven, at correspondingly low prices.

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Dept. I-12.
900 S. Wabash Ave., Chicago

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Home Light and Water Systems

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Toledo, Ohio

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TIME TESTED QUALITY

EXCLUSIVE FEATURES

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McDonald
THRU REGULAR TRADE CHANNELS only
A COMPLETE LINE FLEXIBLY PRICED!

A. Y. McDONALD MFG. CO., Dubuque, Iowa

OMAHA · MINNEAPOLIS · DES MOINES · KANSAS CITY · SIOUX CITY

1,952,361. Inlet and Outlet Attachment for Heat Radiators. Robert J. Buckley, Elizabeth, N. J.

1,956,390. Air Conditioner and Compressor. Otto H. Klotz, Philadelphia, Pa.

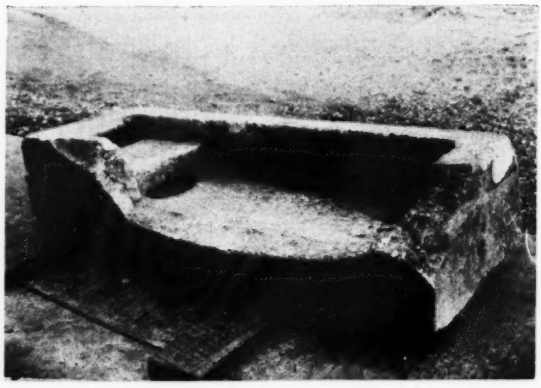
1,953,975. Tube Cutter. William A. Phillis, Warren, Ohio, assignor to The Borden Company, Warren, Ohio, a corporation of Ohio.

1,951,584. Nipple Wrench. Walter Van E. Thompson, Los Angeles, Calif., assignor to Thompson Manufacturing Company, Los Angeles, Calif., a corporation of California.

Find Bathtub, Installed 118 Years Ago

Huntsville, Alabama, has the distinction of being one of the few cities in the United States which had a water works system in the early part of the nineteenth century. It also has one of the first bathtubs installed in this country. The accompanying reproduction from a photograph shows this old bathtub as it looks today. It is 5 ft. long, 19½ in. wide, and 1 ft. deep.

It was installed in a special bathhouse at the home of Thomas Martin in Martin's Hollow on Monte Sano Mountain, 7½ miles northeast of Huntsville, Ala., in the year 1816. The residence was built of native limestone, contained six rooms and had a cellar under the entire building. In the yard, about 40 ft. from this building, was a stone bathhouse, in which this bathtub was located. This tub was chiseled out of a limestone rock, weighs about 500 lbs., and it has a



The old bathtub as it looks today

seat at the head and a hole at the foot, as an outlet for the water. This hole is about 2 in. in diameter. The Martin home was located at the foot of Monte Sano, just below a famous spring, "Cold Spring," where the temperature of the water is always 55 deg. F.

About the year 1870, the tub was moved to Huntsville and installed in a house, which Thomas Martin had built in 1826 to be used as his city home.

On July 1, 1934, this house and lot and adjoining properties were sold to the United States Government and will be used as a site on which the new postoffice for Huntsville will be erected.

It was in this house that the old bathtub was found, as were also several lengths of wooden water pipe, remnants of the original water supply system in Huntsville. These water pipes were made of cedar logs and they were laid down about 1818.

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00 for each insertion.

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REPRESENTATIVE WITH FOLLOWing among plumbing specialty houses and jobbers. Fast selling line patented replacement handles and escutcheons. State qualifications. Address Key 107-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Ill.

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For Sale

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Columbus, Ohio

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Index to Advertisers

December, 1934

American Brass Co..... 9
American Radiator Company.....80 and 81
American Sanitary Mfg. Co.134
Anderson Manufacturing Co. 88
Armstrong Bros. Tool Co..148
Automatic Products Co....101
Ayling & Reichert Co.....147

Badger & Sons Co., E. B... 89
Barber-Colman Company.. 98
Barnes & Jones, Inc.....105
Bead Chain Mfg. Co., The..138
Beaton & Cadwell Mfg. Co. 86
Bell & Gossett Co.....103
Benson Co., Inc., Alex R...151
Bryant Heater Co., The....105
Burnham Boiler Corp..... 15

Cash Valve Mfg. Corp., A. W. 103
Century Electric Co..... 93
Chase Brass & Copper Co., Inc. 155
Chicago Faucet Co..... 5
Clayton & Lambert Mfg. Co. 151
Cleveland Brass Mfg. Co..151
Consolidated Brass Co....139
Crane Co. 12
Cudahy Packing Co.....137

Dahlquist Mfg. Co.....140
Dart Mfg. Co., E. M.....148
De Witt Products Corp....147
Dole Valve Co., The.73 and 74

Eagle-Picher Lead Co.....140
Essex House 104
Excelso Products Corp.... 97

Fairbanks, Morse & Co....152
Fedders Mfg. Co..... 85
Fretz-Moon Tube Co.....114

General Electric Company. .....90 and 143
General Fittings Co..... 94
Gerstein & Cooper Co..... 95
Gorton Heating Corp.....105
Grand Haven Brass Foundry 144

Harvey-Whipple, Inc.....105
Hayes Mfg. Co.....151
Hays Mfg. Co..... 21
Hindley Mfg. Co..... 148
Hoffman Specialty Co..... 20
Hotel Melbourne 150
Hotstream Heater Co..... 98

Imperial Brass Mfg. Co....119
International Nickel Co... 14

Janette Mfg. Co.....100
Jarecki Mfg. Co.....129

Kainer & Co.....107
Kennedy Valve Mfg. Co...136
Kitson Co. 92
Kohler Co. 10
Koven & Bro., Inc., L. O..113

Lavelle Rubber Co.....116
Leonard-Rooke Co. 150
Linde Air Products Co.,The 13

Maid-O-Mist, Inc..... 99
McDonald Mfg. Co., A. Y...152
McDonnell & Miller.....108
Mercoid Corp., The.....102
Milwaukee Valve Co..... 83
Minneapolis-Honeywell Regulator Co.....106
Modine Mfg. Co..... 96
Mueller Brass Co..... 11
Mueller Co. 152
Multi Seal Mfg. Co.....147
Myers & Bro. Co., F. E.....120

National Regulator Co....100
National Tube Company... .....Back Cover
New Jersey Stoker Corp... 87
Northern Indiana Brass Co. .....Inside Front Cover
Nu-Way Corp. 102
Nye Tool & Machines Works 136

Ohio Brass Co., The.....101

Penberthy Injector Co..... 49
Pennsylvania Range Boiler Co. 146

Reichert Float & Mfg. Co.152
Revere Copper & Brass, Inc. 18
Ridge Tool Co., The.....133
Roper Corp., Geo. D.....149
Rundle-Spence Mfg. Co....139

Sarco Co., Inc.....126
Schleicher, Ed.....102
Scovill Mfg. Co..... 6
Silent Glow Oil Burner Corp., The 77
Slyker 102
Smooth-On Mfg. Co.....146
Speakman Co..... 7
Standard Sanitary Mfg. Co.....52 and 53
Streamline Pipe & Fittings Co., Division Mueller Brass Co..... 11
Sturtevant Co., B. F..... 19

Thrush & Co., H. A..... 17
Toledo Pipe Threading Machine Co., The..... 24
Trimont Mfg. Co., Inc.....148

Uniflow Manufacturing Co.144
Union Carbide and Carbon Corp. 13
Union Coil & Mfg. Co.....105

Vogel Co., Jos. A..... 3

Walworth Company..... .....Inside Back Cover
Warnock Mfg. Co.....147
Waterfilm Boilers, Inc..... 84
Watts Regulator Co..... 56
Wayne Oil Burner Corp... 92
Wise, Inc., J. B..... 8
Worcester Brush & Scraper Co. 149

Youngstown Sheet & Tube Co. 16

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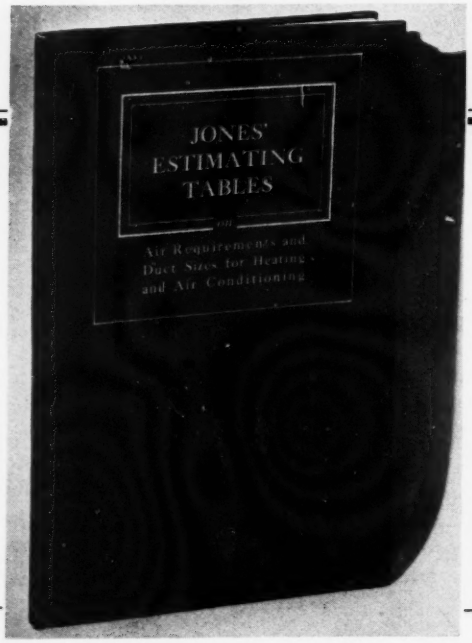

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How much air leaks through each lineal foot of crackage around windows and doors?

Is it customary practice to recirculate air from kitchens, bath rooms, and garages in residence heating systems?

What is considered the correct temperature to maintain in heating garages?

In figuring heat losses, at what temperature can you assume unheated attic spaces to be maintained?

What is the temperature of concrete floors in basements and the heat loss through same?

How much air will one Btu raise one degree Fahrenheit?

What is the accepted method of estimating the sizes of trunk line sections in a duct system?

TABLE OF CONTENTS

Chapter 1.
Explanation of tables.
Example showing use of tables.
Explanation of formulas used in development of tables.
Chapter 2.
9 tables for temperature differences of 90 degrees covering the multiplying factors for c.f.m. requirements for masonry walls, frame walls, roofs over heated spaces, ceilings, concrete floors, wood floors with no ceilings, glass windows, infiltration and cubical contents.
Chapter 3.
9 tables, same as above, for temperature differences of 80 degrees.
Chapter 4.
9 tables, same as above, for temperature differences of 70 degrees.
Chapter 5.
9 tables, same as above, for temperature differences of 60 degrees.
Chapter 6.
Table for determining areas of ducts for various air velocities and c.f.m.
Chapter 7.
Table for determining equivalent sizes of rectangular ducts as compared with round ducts.
Chapter 8.
Table determining register and riser sizes for supply and return air on basis of c.f.m. and air velocity.
Table for multiplying factors for changing c.f.m. to Btu. when heating garages.
Chapter 9.
Example of working out actual installation.

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